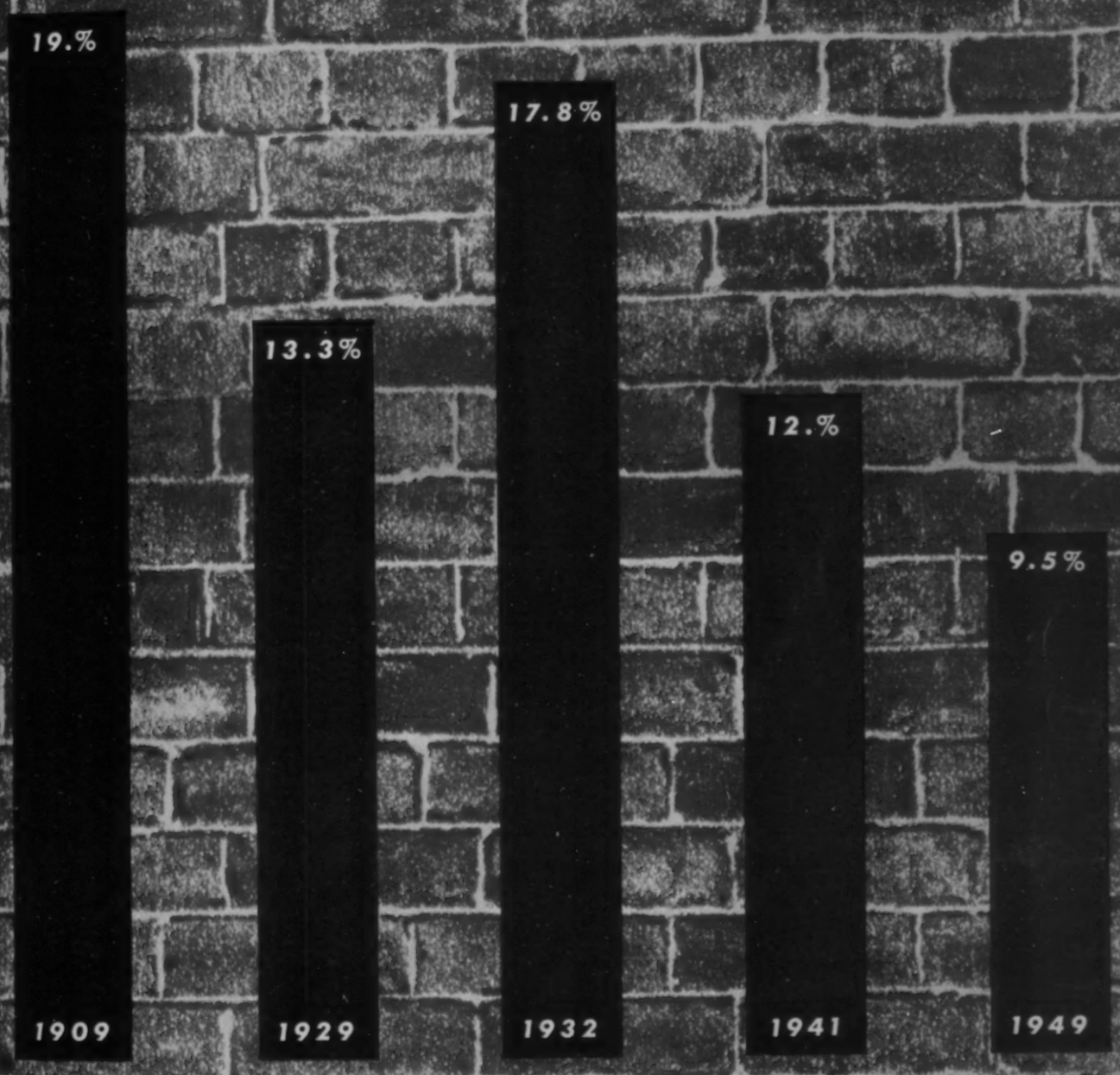
SEPTEMBER 1950

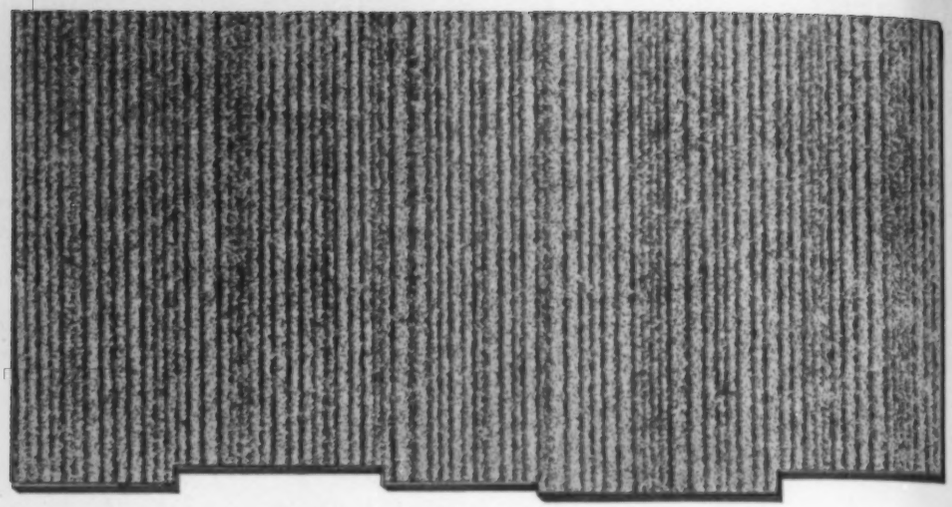
ARCHITECTURAL RECORD



PERCENTAGE OF FAMILY BUDGET SPENT FOR HOUSING

BUILDING TYPES STUDY:

APARTMENTS



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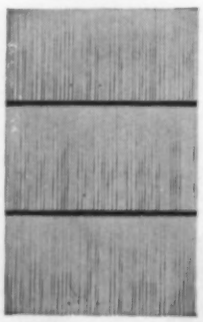
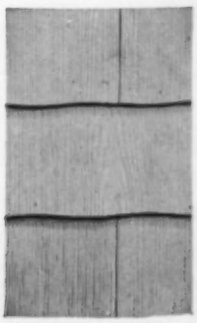


WAVELINE WOODGRAIN



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MELROSE HOUSES, BUILT FOR NEW YORK CITY

Both New York State and New York City have been making great strides in public housing. Standardized design and pre-construction planning have served to hold costs on Public Housing at lower levels. John A. Johnson & Sons have been called upon again and again by the State and City to construct some of their important projects. Included have been contracts for the eight structures, pictured above, comprising Melrose Houses, Bronx, N. Y. (1023 family units) at a total development cost of $14,325,000, and seven of the ten structures (approx. 1000 units) in the $18,000,000 Farragut Houses project in Brooklyn, N. Y.

TWO GROUPS AT WORK AS A.I.A. ACTS ON EMERGENCY

THE AMERICAN INSTITUTE of Architects has responded to the national emergency with quick action on two fronts — the first established to "mobilize" the resources of its own membership and the second to consolidate the efforts of all the design professions.

Two separate committees are carrying the ball in these endeavors — a strong new National Defense Committee headed by Past President Douglas Orr of New Haven and an Emergency Committee which has Roy F. Larson of Philadelphia as its chairman.

National Defense Committee

The National Defense Committee, which had its initial meeting in New York last month, will spearhead the A.I.A.'s drive to insure fullest use of the services of the architectural profession in aid of the expanded national defense program.

Members of the committee include Howard L. Cheney and John Reed Fugard, Chicago; Harold D. Hauf, Harry M. Prince and Perry Coke Smith, New York; Glenn Stanton, Portland, Ore.; Harold Buckley Willis, Boston; Kenneth E. Wischmeyer, St. Louis. Other members representing different parts of the country are being added from among the chairmen of standing committees of The Institute dealing with architecture and nuclear sciences, government relations, schools, hospitals, urban planning and housing, and related subjects.

As outlined by President Ralph Walker at the committee's first meeting, the A.I.A. program will have far-reaching effects on the entire program of the Institute and its chapters.

A preliminary survey of the field, based on wartime experiences of architects in this country and abroad, indicates that the architectural profession will be expected to make a major contribution to civilian defense, Chairman Orr said. A detailed survey is already under way to document the capabilities of the architectural profession. Mr. Orr described problems of plant and shelter design, the dispersal of urban populations, and camouflage as among those of immediate importance.

The Committee is also actively at work on problems relating to government control of building materials, the reorganization of public housing, redevelopment and research programs, and such immediate defense activities as the design of airports and public buildings to house defense activities. The Institute's Washington staff is being consulted by government agencies on specific building programs.

Also on the Committee's agenda will be long-term planning for readjustment following the emergency period, as well as fundamental studies to explore ways in which emergency construction can make a maximum contribution to the gradual reconstruction of problem areas in American cities.

Both Mr. Walker and Mr. Orr have emphasized that the scope of the committee's work is very broad and that work on the most urgent aspects of it has already begun. They describe the organization as "tentative" and stress that the task of developing a comprehensive policy to deal with the present emergency is still in its initial stages. They invite suggestions from local chapters of The Institute and say they expect much of the committee's work will eventually be local in character.

Emergency Committee

Formation of the Emergency Committee as a collaborative committee of the design professions was hailed by A.I.A. President Walker and those who attended the initial session as a move toward real and continuing collaboration among architects, engineers, landscape architects, mechanical engineers, city planners and others in the design professions.

Mr. Walker emphasized that the committee's work would allow all qualified technical individuals having specialized professional abilities to be of maximum service to the government in this emergency and to collaborate effectively in the most efficient way while providing such services. He expressed the hope that a foundation is also being laid for stronger and more lasting working relationships among the several design professions.

Members of the executive committee, which is not yet complete, include Mr. Larson, representing the A.I.A.; A. D. Taylor of Cleveland, representing the American Society of Landscape Architects; and S. Logan Kerr of Philadelphia, representing the American Society of Mechanical Engineers.

Executive Group Meets

The executive committee held an organization session in Washington in mid-August, some two weeks after it was appointed at a conference called in New York by A.I.A. and attended also by representatives of the American Institute of Planners, the American Society of Civil Engineers, the National Society of Professional Engineers, and the American Institute of Decorators. The American Institute of Electrical Engineers has received an invitation to participate in future work of the group.

General Goals Set

Varying methods of practice and the absence of a clear understanding of the scope of each of these professions have led to some confusion on projects requiring collaboration. The committee will try to clarify the respective responsibilities of each profession in the design and construction of housing, public buildings, industrial and institutional developments, and other types of projects. With the recommendations of this joint committee as a guide, the members of each of these professions can more clearly determine their respective part in any collaborative procedure on any specific type of project.

This new effort to coordinate the services of technical people engaged in large-scale construction design parallels the formation of effective but temporary interprofessional committees to define professional responsibilities under the war housing program in 1940 and the veterans hospital program in the post-war period.

Three 12-story office buildings are under way in Los Angeles for Tishman Company

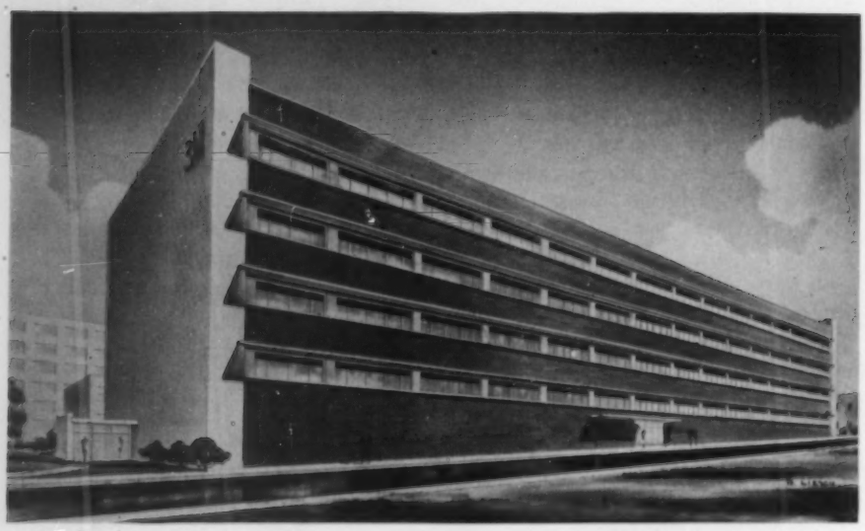
TISHMAN OFFICE BUILDINGS STARTED ON WILSHIRE BLVD.

THREE 12-STORY office buildings for the Tishman Realty & Construction Co. of New York City have been started on Wilshire Boulevard in Los Angeles.

Included in the $12,000,000 project is a two-story garage for 1400 cars. There will be retail shops along the entire 465-ft Wilshire Boulevard frontage between Mariposa Avenue and Irola Street.

Each of the three buildings will occupy a plot measuring 100 by 150 ft and will contain approximately 150,000 sq ft of rentable area above the street floor stores. Completion of the building is scheduled for May 1, 1951.

Claude Beelman of Los Angeles is the architect.



Minnesota Mining & Manufacturing Company office building is now under construction

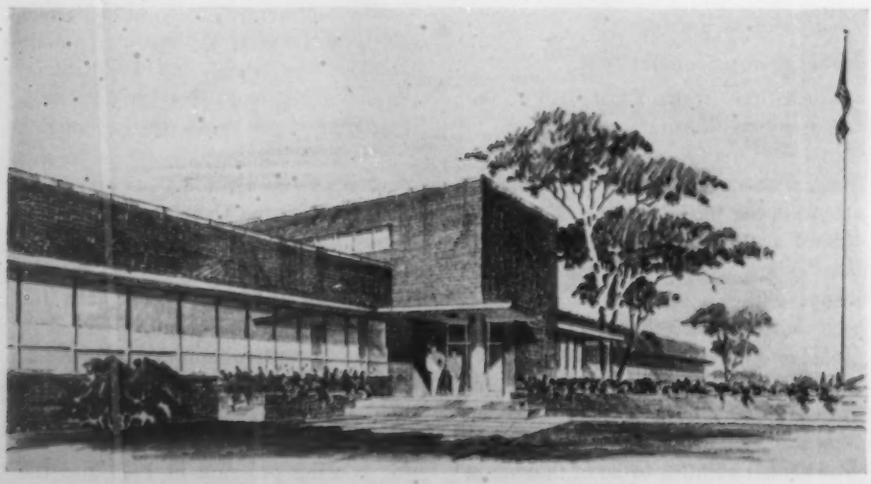
MINNESOTA MINING & MFG. STARTS OFFICE BUILDING

A FIVE-STORY-PLUS-BASEMENT office building is under construction for the Minnesota Mining & Manufacturing Co. in St. Paul, Minn.

Ellerbe and Company of St. Paul are architects for the building, which is expected to cost $2,700,000.

The new building, 312 ft 6 in. long and 112 ft 6 in. wide, will be attached to an existing two-story Administration Building with a passageway at basement level. The fifth floor will be left unfinished to provide for future expansion.

Construction is of reinforced concrete columns and flat slabs, with exterior walls on the east and west of limestone, on the north and south of brick.



Motor truck engineering and laboratory building which will be built at Fort Wayne, Ind.

TRUCK ENGINEERING AND LAB BUILDING UNDER WAY

PRELIMINARY site preparation work has been started on a $6,500,000 motor truck engineering and laboratory building for the International Harvester Company at Fort Wayne, Ind. The structure will be located on a 25-acre tract of land, with a 1000-ft frontage on Meyer Road, directly opposite the east entrance of the company's existing motor truck plant.

The new building, designed by Albert Kahn Associated Architects and Engineers of Detroit, will provide facilities for the entire engineering department of International Harvester's Motor Truck Division and will include an administration section plus four functional sec-

tions. The functional sections, which will be separated by open courts, will house engineering and drafting rooms, experimental shops, laboratories for all types of testing and a number of dynamometer test cells for testing of engines, transmissions and rear axles. Also included is a road test area where experimental models of trucks are to be prepared for testing on the adjacent test track or on public highways in the area.

Essentially a one-story structure of brick construction with structural steel frame, the building will provide approximately 235,000 sq ft of floor space.

The design includes steel sash and glass, poured gypsum or cement tile roof deck, composition flooring. The interior finish in office and drafting areas will be asphalt tile floors, metal sash partitions and acoustical tile ceilings; the laboratories and test cells will have quarry tile floors, glazed tile wainscot and acoustical ceilings. Air conditioning will be provided in the offices and drafting rooms, while the remaining portions of the building will have adequate natural ventilation. Large fan rooms located on the roof will house the extensive ventilating equipment required.

The work will cover the extensive mechanical services required in the laboratory sections, including a system for storage and distribution of fuel to the various engine testing cells.

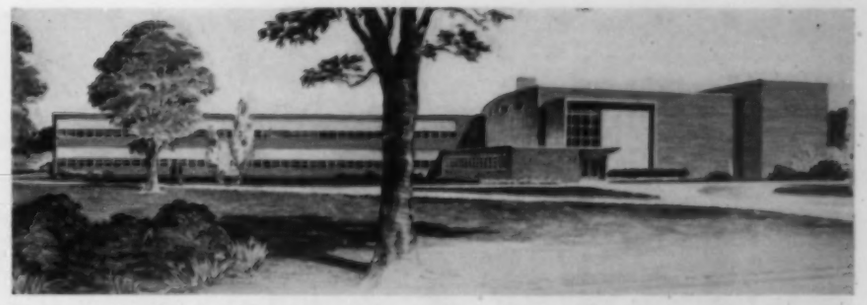
SURVEY QUESTIONNAIRES ARE SENT TO ARCHITECTS

QUESTIONNAIRES in A.I.A.'s 1950 survey of the architectural profession were scheduled to go out this month to 16,000 registered architects.

The survey is being made under the auspices of the Commission for the Survey of Education and Registration of the American Institute of Architects, Department of Education and Research, to determine how well the nation's architectural schools prepare the young architect for his profession. Dr. Edwin S. Burdell, director of Cooper Union, is commission chairman.

The questionnaire, "pre-coded" for I.B.M. tabulation, is divided into four sections: professional history, educational background, architectural practice, registration and examinations. Statistician Andrew Fraser is the Commission's research consultant on the questionnaire.

The Commission hopes to have its findings available in time for announcement at the 1951 Convention of the Institute.



Above: photo of rendering for junior-senior high school proposed for Canton, New York

PLAN THREE UNITS FOR SCHOOL IN BATON ROUGE

THE FIRST of the three main units which will comprise Istrouma High School in Baton Rouge, La., will be completed within a few months at a cost of $948,667.

Architects for the school are Bodman & Murrell.

Unit A (at left in photo of rendering below) is the classroom portion of the high school, containing also the library; science, home economics and commercial departments; and all necessary facilities for 1200 students.

Also under construction is Unit B (at center, below), a combination cafeteria-music building. Complete cafeteria and kitchen facilities for faculty and students are contained in the cafeteria portion. The music area includes a large band room, a choral room, practice rooms, etc.

An auditorium-gymnasium will be provided in Unit C. Here a folding electrical partition will create separate boys' and girls' gymnasiums.

Cost of Units B and C is expected to total $476,450.

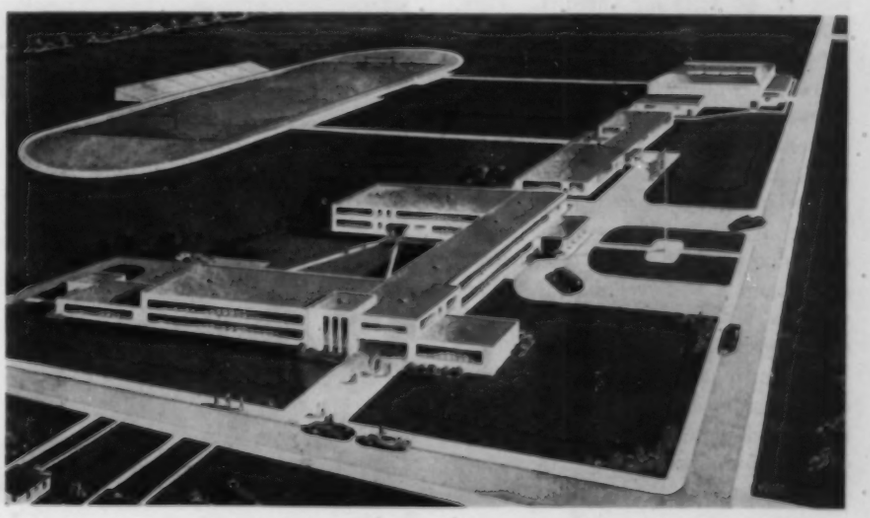
MODERATE COST STRESSED IN CANTON SCHOOL DESIGN

WITH emphasis upon moderate cost and good maintenance factors, the architectural firm of Sargent-Webster-Crenshaw & Folley of Watertown, N. Y., announces that plans are under way, in the drawing stages, for a junior-senior high school in Canton, N. Y. All in all, it can be considered as a typical central school project for New York State, outside the metropolitan area, according to the architects, who point out that the elevations are subject to some extensive re-study, which will be accomplished during the next several weeks.

Construction is scheduled to get under way next July. The estimated cost is $1,056,000 for building alone, with the total budget of $1,450,000 to cover all costs.

Sargent-Webster-Crenshaw & Folley, in addition to this project, are interested in a central school at Groton, N. Y., being designed by their Syracuse office, and an elementary school at Watertown. Their responsibilities, in both these operations, included surveys for site selections and pupil population studies.

Below: three main units will comprise Istrouma High School at Baton Rouge, La.



Photos by Alden Dow

Snapped at the Mackinac Conference: (left) Paul Hazelton and President Andrew Morrison, Detroit Chapter, A.I.A.; (right) Mr. and Mrs. Robert Tucker and Mr. and Mrs. John Richards. Mr. Richards is A.I.A.'s regional "veep" for the Great Lakes District

110 AT MACKINAC FOR ANNUAL MIDSUMMER CONFERENCE OF MICHIGAN'S ARCHITECTS

NEW DEVELOPMENTS in plastics, curtain wall construction, and the Mackinac Bridge Authority were the major program topics for this year's edition of the annual midsummer conference of the Michigan Society of Architects at the Grand Hotel in Mackinac Aug. 3–6.

Between formal sessions, 110 architects and their guests enjoyed a round of social activities highlighted by President Alden Dow's cocktail party in his suite on the evening of Aug. 4.

Hon. Prentiss Brown, chairman of the Board of the Detroit Edison Company and former U. S. Senator from Michigan, made the principal address at the banquet. Mr. Brown, who was recently appointed chairman of the Mackinac Bridge Authority, gave a talk on the history of Michigan that members of his audience agreed was one of the most interesting they had ever heard. Mr. Brown also announced that the Mackinac Bridge Authority had engaged Coverdale and Colpits, consulting engineers, of New York, to make a survey for the Authority of traffic conditions from 1923 to the present and to appraise future increases.

Earl Kropscott and Robert Tucker of the Dow Chemical Co. presented the Friday program on new developments in plastics. Their talks provided a summary of the processes used in manufacture of plastics and were illustrated with suggestions for use of various plastic products in building.

"Light-weight or Curtain Wall Construction" was the topic for O. M. Mader, head of the architectural section of Aluminum Company of America, at Saturday morning's session. Louis T. Ollesheimer, president of Producers' Council, Inc., was moderator for the session, with Prof. Ralph Hammett, the Society's second vice president, presiding.

ALL-MARBLE EXTERIORS USED FOR HOUSTON STORE

WHITE marble is used for all exteriors of the five-story department store now under construction in Houston, Tex., for Sakowitz Brothers at an estimated cost of $8 million. Alfred C. Finn, F.A.I.A., is the architect.

Marble is used also for architraves at entrances, which will rise to a height of four stories, and for the trim making the corners at the show windows. A low black granite base is used around the entire building.

The building, designed for future expansion to 10 stories, is of structural steel framing with cellular steel floor, which serves as conduits for wiring and makes possible future layout changes.

The entrances are of extruded and cast aluminum recessed into the building and glazed. They are the only two openings for outside light.

Perforations in the outside walls are for air intakes to the air conditioning cooling units. The architect notes that fewer than a third of the number shown in the rendering are actually used.

The floor layout and interior were designed by Brochsteins A.I.D. of Houston, with Mr. Finn's office supplying architectural details.

Below: photo of rendering

Paul Dorsey Photo

NEWS FROM WASHINGTON *by Ernest Mickel*

Architects Rally to Tasks of Partial Mobilization; Construction Industry Ready for Emergency, Seeks Effective Role; Analyses Of Effect of Initial Restrictions Await Reports from the Field

THE ARCHITECT'S ROLE in partial mobilization of the country's economy is slowly emerging from a welter of varying viewpoints and separate decisions.

The American Institute of Architects was in contact with the Air Force early, discussing the method of selecting architects in the master plan for enlarging, improving and constructing air bases.

President Ralph Walker of The A.I.A. alerted chapter presidents to prepare the membership for the fullest cooperation in the national effort (see page 9 of this issue for more on A.I.A. reaction).

Some private architects already had been at work on new construction plans involving military and defense work; in some instances, whole towns, it was reported.

Home builders were among the first organized groups to announce publicly that their services were being offered to the federal government in the emergency. The Associated General Contractors of America, Inc., representing the builders of highways, airports, railroads, public works, buildings and other forms of heavy construction, met with several government agencies to discuss the means for most effective use of the general contracting industry in the current program. The National Constructors' Association of New York wrote the National Security Resources Board offering its collective talent.

Through these offers of assistance to Uncle Sam that came so readily from the private construction industry ran one central theme: construction is ready for any emergency, it has the potential to supply the needs. Materials and manpower give the greatest concern; but these problems have been worked out before, and can be again.

After reassuring government of full cooperation, the various segments of the industry were standing by. They were waiting for the national defense program to take more definite form. Contractors were ready to go to work on expanding defense programs as soon as they were told what these would be. Once the military needs were spelled out, the industry could better determine for itself the turn that future production would take.

Such basic commodities as lumber and steel were the limiting factors. How much would the military require? How much would essential civilian construction require? These questions were foremost in the minds of architects, engineers and contractors as planning went ahead in Washington.

Construction Is Ready

The general contracting industry, said the A.G.C., will be able to undertake any and all construction required by prospective mobilization plans promptly and economically.

This was a broad statement. But it came after due reflection, following a meeting of the Association's national defense committee with construction agencies of the government. These agencies included Navy's Bureau of Yards and Docks, Army's Corps of Engineers, the Air Force, Munitions Board, Atomic Energy Commission, National Security Resources Board and the Bureau of Public Roads.

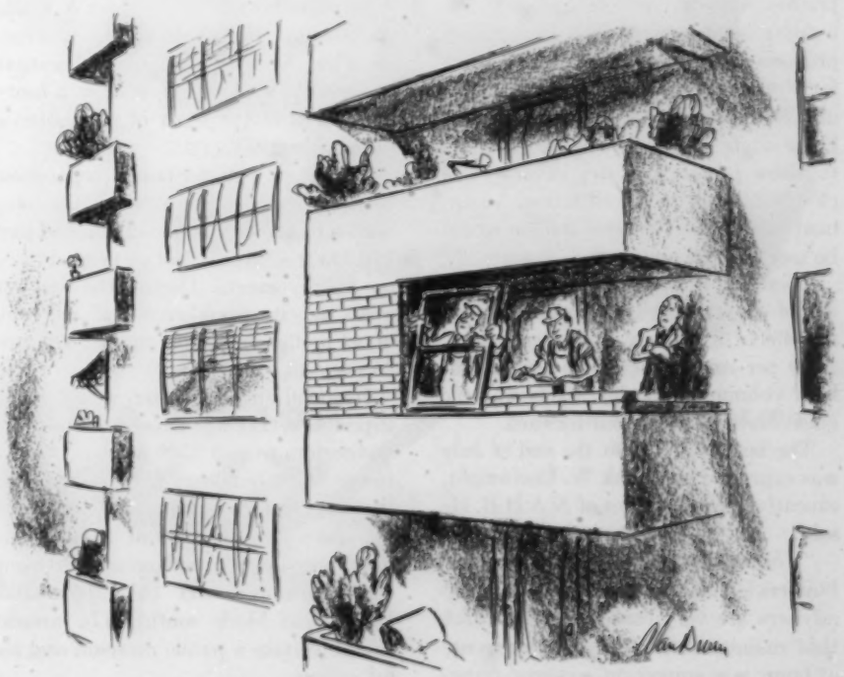
A.G.C. assured these U. S. agencies: "The construction industry is engaged in the greatest peacetime construction program in history. The capacity of general contractors to handle construction quickly and economically is greater than ever before. Competition in the industry is keen and prices are surprisingly low. . . .

"Defense construction will have an impact upon civilian construction. There is ample contractor capacity for both. But the materials shortages which have been developing may become more serious. At the present time there is no need to stop any construction which is under contract. Increasing shortages of materials, or manpower, may make it necessary to postpone the start of new projects not essential to defense or necessary civilian activities."

The A.G.C. called for fixed price contracts to be awarded wherever possible for defense construction in continental U. S.

The home builders, through the National Association of Home Builders, moved rapidly to meet the situation as they saw it. Almost immediately President Thomas P. Coogan of Miami, Fla.,

(*Continued on page 16*)



— Drawn for the RECORD by Alan Dunn

WASHINGTON

(*Continued from page 15*)

called on the home contractors to move more cautiously in planning their future programs. The Housing and Home Finance Agency, at the President's request, quickly instituted moves to constrict housing credit; and this generally met with the tacit approval of all those affected by it.

Coogan phrased his message to home builders as follows:

"I am requesting the home builders of the country to voluntarily take stock of their housing projects and curtail their production in accordance with the country's needs. There can be no fixed procedure on this curtailment as the need for housing varies from place to place, but every builder should make a conscious effort to slow his pace and reduce his production. In making such reduction, careful consideration should be given by the builder to maintaining his organization, providing the housing needed in his community, and to the impact of unnecessary unemployment that might result."

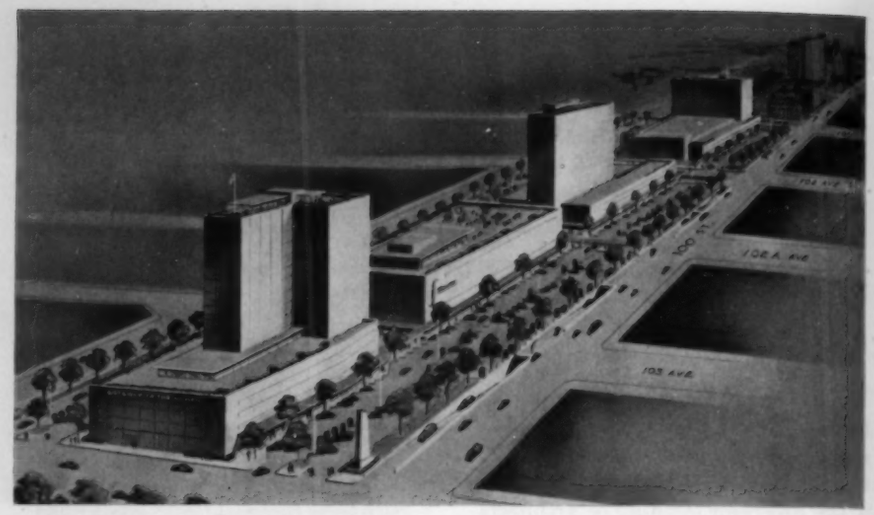
A month after the Korean crisis developed and as federal planning was put on a firmer basis, home builders were far from discouraged. The housing agency moves in the credit field could not be called a disappointment. Most private industry people had felt the housing boom was swelling to alarming proportions. It was just getting too big for itself. An annual construction rate of substantially more than one million home units was somewhat frightening to those private industry observers in close contact with the situation. An annual rate of less than one million would be more comfortable, they agreed.

There were many estimates — in and out of government — as to the restricting effects of the new credit regulations. A 20 per cent reduction in the record-high volume of housing starts was the guess most generally put forward.

The builders' view at the end of July was expressed by Frank W. Cortwright, executive vice president of N.A.H.B. He said:

"The most heartening factor to home builders is that the President and his top advisers are very conscious of the fact that maintenance of a sound economy at home is as important as sound prose-

(*Continued on page 18*)



Architect's rendering (from preliminary plans) shows "Miracle Mile" projected for Edmonton as it would look from the roof of the Canadian National Building, one block to the north. The $25 million center would occupy four blocks in heart of downtown district

NEWS FROM CANADA *by John Caulfield Smith*

"MIRACLE MILE" PROPOSED FOR EDMONTON WOULD CREATE $25 MILLION CIVIC CENTER

APPROVAL of the Province of Alberta Utilities Commission will clear the last hurdle for the proposed $25 million civic center for downtown Edmonton.

The shopping, commercial and entertainment center, designed by Architect A. Gordon Lorimer of Lorimer & Rose, Architects & Engineers, for the sponsor, the First New Amsterdam Corporation of New York, would be built in a four-block area in the heart of Edmonton's business section.

The New Amsterdam Corporation would get a 69-year lease on the site, valued by the city at $2 million, and pay $50,000 ground rent, but no property tax on improvements. During the first 30 years the city would receive 25 per cent of net profits and during the last 39 years 30 per cent.

Included in the center would be a supermarket along American lines; an auditorium to seat 2500 persons, with a tower office building; a 16-story office building; surface and underground parking space for 1800 cars at 10 cents an hour; an underground arcade between the auditorium and the Macdonald Hotel (one block south). The arcade would contain a public museum and an art gallery.

One third of the total area would be given to buildings; the remainder to parking parks and nurseries.

The New Amsterdam Corporation gets an 18-month option on the site for deposit of $5000; included is a war clause which provides for a moratorium in case of a national emergency.

Contract Awards at Record For 1950's First Six Months

Construction awards for the first six months of 1950 show an unparalleled increase of $97,244,900 over the same period last year.

The total for the month of June of $164,651,100 is unmatched for any single month in Canada's history. Figures come from the Maclean Building Reports Ltd.

New construction jobs include Ontario Department of Highways contracts totaling over $18 million and a $7 million Toronto rapid transit award. A Veterans Administration building in Ottawa is to cost $5.3 million, and Chatham is planning a $5 million industrial plant. Other construction includes an insurance office at $4.5 million in Toronto, the Statistics building in Ottawa at $3 million and a $3 million textile plant in Sherbrooke.

(*Continued on page 206*)

We want to cook with gas!

IT'S QUICKEST IT'S CHEAPEST
IT'S SAFEST

What are you going to say, Mr. Architect, when the young couple asks, "Gas is safest, isn't it?" Better just refer them to the Underwriters' report on fire causes for any year: Gas *way* down at the bottom, all other cooking and heating agents way up high.

What are you going to say, Mr. Project Promoter, when they ask, "Gas is cheapest, isn't it?" Better get that main extended, because *that* couple has probably seen the comparative-cost-per-BTU chart.

What are you going to say, Mr. Contractor, when they say, "Gas is quickest, isn't it?" Make up your mind, Sir, once and for all. Put a vessel of water on a Universal Gas Range top burner, and an identical vessel on a range top using any other means of heat. Time them. Then you can answer with assurance:

"Nothing Cooks Like Gas—
And Universal Proves It!"

CRIBBEN & SEXTON

Universal

GAS RANGE

MASTER BERKSHIRE MODEL

CRIBBEN & SEXTON CO., 700 NORTH SACRAMENTO BOULEVARD, CHICAGO 12, ILLINOIS

HOOD 1ST CHOICE again by all 3!

THE ARCHITECT— Mellenbrook, Foley & Scott, Berea, Ohio.

THE GENERAL CONTRACTOR— R. S. Ursprung Co., Hanna Building, Cleveland, Ohio.

THE FLOORING CONTRACTOR— Burk Asphalt Tile Company, Cleveland Heights 18, Ohio.

Again, *new* Hood Asphalt Tile has been chosen, this time for the new Butternut School in North Olmstead, Ohio, and again this superior tile is the choice of the architect, the general contractor and the flooring contractor . . . men who know *better* flooring!

And for good reason! New Hood Asphalt Tile is now available in a choice of 24 sparkling colors with directional marbleization that will meet the requirements of the most exacting decorative plan, above or below grade, and its square, precision-cut edges mean all-important savings on labor and installation costs. More and more every day, Hood is adding to its long list of new installations in which it has been the choice of those whose responsibility is to install longer lasting, more colorful and more economical flooring. Let this choice of those who know be *your* guide on your next job whether it be for remodeling or a new building program for schools, colleges, hospitals, buildings, homes . . . wherever *better* asphalt tile is needed. Your inquiry for further information will be handled promptly.

Be specific . . . specify HOOD ASPHALT TILE

TWO GREAT NAMES — B.F.Goodrich (ASPHALT) Hood Rubber Co. (RUBBER) WATERTOWN, MASS. — TWO GREAT TILES

THE RECORD REPORTS

WASHINGTON

(*Continued from page 16*)

cution of the war abroad. They want home building maintained at good volume commensurate with the availability of materials and men — and, equally important, without creating inflationary excesses. Because of this, we do not anticipate drastic action in housing in the near future, but rather expect encouragement in our maintaining employment in the building trades and in the use of building materials."

The opinion was more than wishful thinking. It was based on a firm knowledge of the government's current contemplated moves gained from a series of conferences with those officials who are in a position to know.

New Controls

The Federal Housing Administration expected a high percentage of the home construction business to continue in the lower and moderate price ranges as a result of the new credit restrictions. It was given an argument on this point, however, in many quarters. It did not seem likely to some that requiring a down payment where no such outlay had been necessary before would stimulate production of lower cost homes.

The reasoning of FHA Commissioner Franklin D. Richards was this:

The controls will be felt more strongly in the higher price ranges because of the proportionately increased equity requirements in connection with higher priced transactions. As an example, he said that down payment on a new house valued at $10,000 now would be $1750. And a new house valued at $15,000 now requires a down payment of $3750. The effect therefore should be to produce a relatively greater market for lower priced housing than for the higher priced ranges.

But HHFA is not going to be satisfied with hypotheses. Administrator Raymond M. Foley has put to work the agencies in his National Housing Council gathering field information in increasing volume. The reporting service will be speeded up to give housing officials a prompt analysis of countrywide reaction to the credit restrictions.

Henceforth, Foley's office will have the benefit of more timely reports from

(*Continued on page 20*)

Architects: Erhart, Eichenbaum and Rauch, Little Rock, Ark.
Associate Archt. L. C. Cavitt, Fort Worth, Tex.

Low and behold...

INTRIGUING as the lowered neckline, Brasco Construction reveals more of the store's attractions and stimulates the urge to buy. Sash members only 25/32" high enlarge the scope of vision by exposing larger areas of plate glass.

At the same time the deeper, more uniform Brasco grip on the glass is fully maintained for maximum safety. Heavy-duty bars, strongly reinforced, provide complete protection for enlarged and heightened areas.

Striking, individualized effects are easily attained with our wide selection of handsome *stock* assemblies. Sash and sill components are fully interchangeable for infinite variety in design treatment.

In either heavy guage stainless steel or serviceable anodized aluminum Brasco at the front assures structural excellence plus beauty that boosts business by sheer *attraction*. Use handy coupon for complete information.

BRASCO MANUFACTURING CO.

HARVEY (Chicago Suburb) ILLINOIS

Specialists in Metal Store Front Construction for more than 40 Years

Brasco
SAFETY-SET STORE FRONTS

BRASCO MANUFACTURING CO., Harvey, Illinois (R 95)

Please mail full information on

- ☐ Safety-Set Store Front Construction
- ☐ Aluminum Doors and Complete Entrances
- ☐ Aluminum Frames for All-Glass Doors

Name _____

Firm _____

Address _____

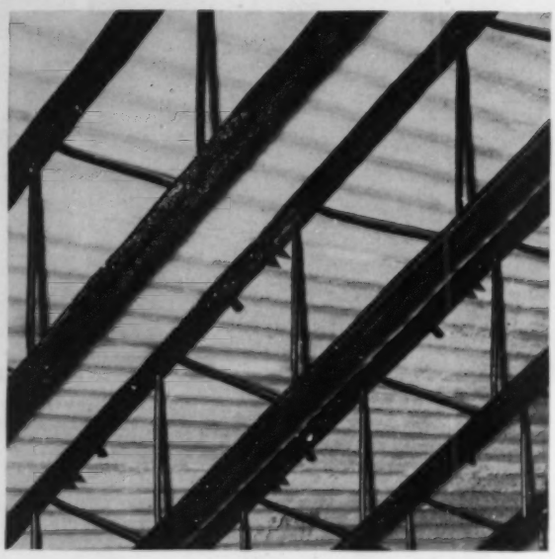
City _____ Zone _____ State _____

One Word Specification

Corruform

When you specify Corruform you get one standard product developed to meet your needs, uniform in quality, available anywhere without restriction on your choice of the major construction materials with which Corruform is used.

Patented Corruform is a 100,000 psi steel base for concrete in joist construction. Millions of square feet of Corruform testify to its service to architects and performance to contractors.



SAFE — because Corruform was developed to provide an extra-tough, secure steel base which maintains structural principles and structural integrity.

GOOD LOOKING — because the pleasing corrugated pattern makes an attractive exposed ceiling. It remains true and level. Corruform is available plain, galvanized or vinyl primed for painting.

ECONOMICAL — because, made of 100,000 psi steel, it performs adequately without waste. Corruform carries concrete without sag, stretch, bend or leakage.

STANDARDIZED — to meet the specification requirements for joist construction, one gauge — .0156" steel — one shape — 2 3/16" x 1/2" deep corrugations — weight 3/4# per square foot with fasteners, steel of guaranteed average strength 100,000 psi — single test minimum strength 95,000 psi.

SEND FOR AIA FILE TODAY

GRANCO STEEL PRODUCTS CO.

(Subsidiary of Granite City Steel)

Granite City, Illinois

SINCE GRANITE CITY STEEL 1878

THE RECORD REPORTS

WASHINGTON

(Continued from page 18)

field offices under the Veterans Administration, Agriculture, Reconstruction Finance Corp., Commerce, Labor and the Federal Security Agency as well as his own constituent agencies. These include FHA, Public Housing Administration and the Home Loan Bank Board.

The Guiding Principles

The three major agencies concerned — Housing, Veterans and RFC — lost no time in putting into practice President Truman's recommendations for restricting housing credit.

This move was made for two principal reasons: first, to conserve building materials for mobilization; second, to put pressure on the upward inflationary trend.

In his letter to the three agency heads, Mr. Truman cited the record level of housing construction. He held it to be desirable, were it not for international developments.

In the Truman letter to Foley, the President outlined these points, administrative actions that have been closely followed:

1) Employ as a ceiling in analyzing property for mortgage insurance purposes the construction costs existing on July 1, 1950.

2) Reduce on all future applications for mortgage insurance the maximum principal amounts, or the maximum percentages of appraised value or cost, or both, of mortgages so that required down payments will be substantially increased, especially for higher priced housing, excluding military housing and the Alaska housing program.

3) Require substantial down payments for modernization and repair loans.

4) Reduce substantially the availability for Federal Home Loan Bank credit to member institutions especially for business expansion purposes, and through supervisory action, encourage the application of stricter credit standards on new mortgage loans by member home financing institutions.

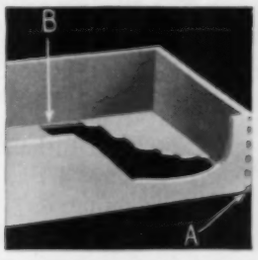
5) Limit the commencement of construction of public housing to not more than 30,000 dwelling units in the first six months of fiscal year 1951, during

(Continued on page 22)

Step Inside...

and see what CURTIS means by quality

Quality is a word that is easy to use—but often hard to demonstrate. But in Curtis *wood* kitchen cabinet units, "quality" becomes a definite, tangible asset—not only for the kitchen planner, but for the owner as well. Here are some of the many features of sound construction and good design that give the home-owner more for his money in Curtis cabinets.



Sound Drawer Construction

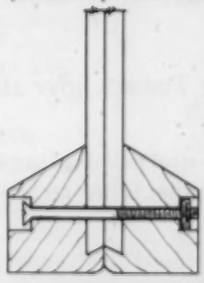
Drawers in Curtis cabinets are dovetailed at all four corners (A). Back, front and sides are plowed near their lower side, (B), the Curtis Prespine bottom panel is inserted in plow before sides are joined by dovetail.

Ample Toe Space

Note ample toe space at bottom of cabinets—two inches—to eliminate marring cabinet and scuffing of shoes. Beautifully styled hardware is furnished with cabinets, and they come painted two coats.

Strong and True

Illustrated on the right is a section of the union of two cases (front corner posts). The strong, space-saving construction of Curtis cabinets appeals to both home-owners and contractors.



Curtis PRESPINE

Doors and panels are made of Curtis PRESPINE—a superior new Curtis wood product made exclusively for use in Curtis Woodwork. Prespine provides a beautiful paint surface—no grain raising or checking.

Curtis cabinets are made in 20 basic unit types and a total of 70 sizes to fit any size or shape of kitchen. Cabinets are designed to permit rapid installation. Let us give you full details about Curtis kitchen cabinet units, Curtis Woodwork and Silentite Windows. Mail the coupon!

Curtis Companies Service Bureau
AR-9K Curtis Building
Clinton, Iowa

Gentlemen: Please send me literature on Curtis kitchen cabinets and other Curtis Woodwork.
I am ( ) architect ( ) contractor ( ) prospective home builder ( ) student. (Please check above).

Name.....

Address.....

City.....*State*.....

Curtis makes a complete line of architectural woodwork for the modern home. Make your next house "all Curtis."

1866 CURTIS WOODWORK

WASHINGTON (*Cont. from p. 20*)

which time the public housing program should be thoroughly reexamined in terms of the developing international situation.

6) Suspend for the time being commitments for direct loans for the construction of housing by educational institutions.

7) Take such further actions as in your judgement are or may become necessary and appropriate (such as restriction of size of projects built for sale) to curtail the use in residential construction of materials essential to national defense.

The same day the President's letter was received, FHA wired its field offices to announce it was taking the following action:

1) Construction cost figures used in insuring offices for the purpose of analyzing property and mortgage insurance or yield insurance shall be frozen as of July 1, 1950.

2) Eligibility provisions of administrative rules under all mortgage insurance plans are amended by reducing the ratio of loan to value or loan to cost specified therein by 5 per cent of such value or cost.

3) Dollar mortgage limitation on single family dwellings is reduced from $16,000 to $14,000.

4) Cash payment of 10 per cent shall be required on property improvement loans under Title I.

The Effects

There was much speculation on the extent to which the new credit restrictions would cut into housing production. No one was certain. Only results in the months ahead hold the answer.

Some builders and mortgage lenders placed the cutback as high as 50 to 60 per cent of the record volume which had continued to climb through the first half of the year.

Private industry, like the housing agencies of government, was seeking the answers in the field. The N.A.H.B. membership letter of July 26 asked these questions of builders:

By what percentage do you think the required increased down payments will reduce home construction by you? . . . by other builders in your city?

Do the larger down payments disturb you more or less than the possibility of some building materials being in short supply?

Which building materials have risen in cost during the last month and about how much?

Is there stockpiling of building materials in your community?

Have landowners increased their prices?

Are buyers rushing to conclude sales contracts?

Are military-age buyers hesitant to purchase?

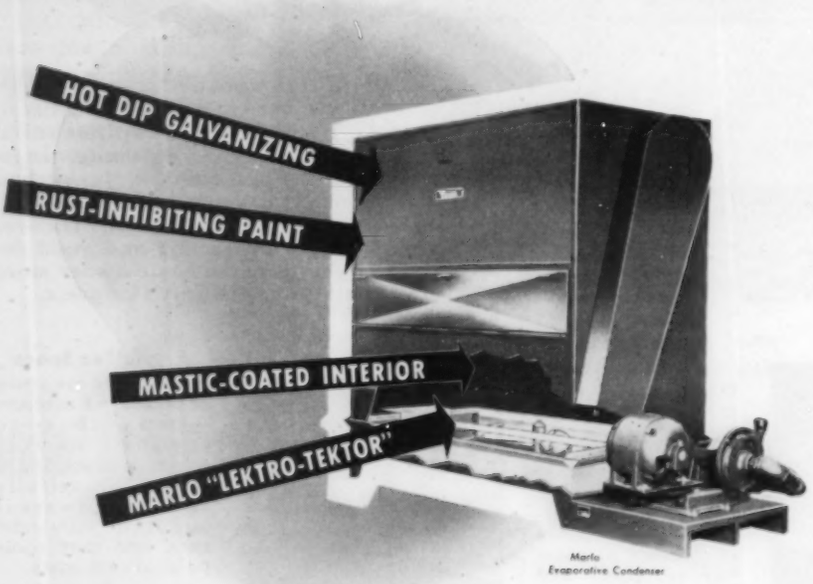
Do buyers think new homes are a desirable hedge against inflation and higher building costs?

What is the attitude of local lending institutions on making construction money available in view of the current situation?

The answers to these questions should be interesting and enlightening. The builders believe the new regulations have been "carefully thought out as to their effect on the housing industry." They feel sure the curtailment will take effect gradually.

(*Continued on page 24*)

ONLY MARLO COOLING UNITS ARE DOUBLY-PROTECTED AGAINST CORROSION ...Outside and Inside



Marlo Evaporative Condenser

Marlo Evaporative Condensers and Cooling Towers offer this big four-way defense against corrosion:

OUTSIDE — over the Hot Dip Galvanizing — Marlo all-steel housings are sprayed with a special rust-inhibiting alkyd resin-base paint that forms an *extra* front line barrier against corrosive elements.

INSIDE EACH UNIT — sheets, panels and galvanized parts are coated with a sound deadening *asbestos-asphalt mastic* that doubles as an efficient corrosion retardant. Additional internal protection is afforded by Marlo's exclusive "Lektro-Tektor" that *prevents electrolytic sump tank corrosion.*

• *Specify Marlo Cooling Units for your buildings . . . assure dependable, longer-lasting installations.*

MARLO HEAT TRANSFER Since 1925

Write for complete information on Marlo Evaporative Condensers and Cooling Towers.

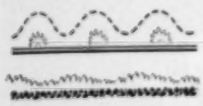
Marlo COIL CO. • 6135 Manchester Rd. • St. Louis 10, Mo.

America's best fuel buy is Anthracite!

HERE'S WHY

Hard Coal is a better, more efficient fuel because:

1. You enjoy greater COMFORT with STEADY Hard Coal Heat



Other fuels heat in "bursts," result in varying temperatures. But Hard Coal fire gives you steady, even, dependable heat *all the time!*

2. You get HEALTHFUL heat with Hard Coal—NOT "up and down" heat—NO "cold pockets"

Widely varying temperatures you get with other fuels create cold areas in home—"cold pockets"— a danger to health. (Cold pocket behaves like a vacuum—draws air to itself, causes *drafts.*) But with STEADY Hard Coal heat you're SAFE!

3. Hard Coal Heat is CLEANER heat—leaves no greasy film on drapes or furniture—no odor

Hard Coal *burns* more completely and cleanly than other fuels. No greasy deposit or oily smell with Hard Coal . . . no soiled furniture or curtains. Lower cleaning bills!

4. Hard Coal CAN'T SMOKE under any conditions

Hard Coal is the perfect fuel—impossible for it to smoke. Makes for cleaner homes, cleaner neighborhoods!

5. SAFE heat . . . no worries about possible explosions

People with other fuels often worry about "something going wrong"—leaks or explosions—perhaps during the night or when there's nobody home. But not people in Hard Coal homes—they enjoy peace of mind.

6. You can STORE a full winter's supply—in advance

With Hard Coal, you don't have to worry about bad weather holding up mid-season deliveries—you can fill your bin ahead of time, with enough fuel for *the whole winter!*

7. Undreamed-of CONVENIENCE is yours, with modern AUTOMATIC Hard Coal equipment

You just set the thermostat and forget it—fuel-feed and control are automatic! Hard Coal heat is *modern* heat!

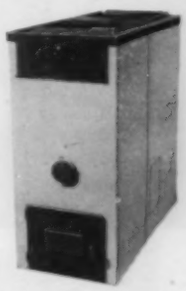
8. With automatic equipment, Hard Coal SAVES you up to $125 a year

You burn the most economical *sizes* of Hard Coal . . . get the most efficient automatic combustion!

Now—Hard Coal Heat is AUTOMATIC with modern equipment!

Gives amazing CONVENIENCE and SAVINGS

Now everyone can have AUTOMATIC heat at a price they can afford. New automatic Anthracite equipment feeds itself with fuel right from bin, removes ashes automatically. Thermostatic control—set it and forget it! Year-round hot water too! 100% clean, compact equipment turns basement into a "living area"! It's the STEADIEST, healthiest, coziest heat of all. Fuel costs FAR LESS—because the equipment burns the *most economical sizes* of Anthracite! Savings up to $125 a year pay for equipment! Write Anthracite Institute, 101 Park Ave., N. Y. 17, N. Y.



ANTHRAFLO . . . A low-priced, efficient furnace-burner unit. Compact. Feeds self from fuel bin. Rugged construction, no complicated parts to get out of order. Completely automatic, silent, clean. *Burns MONEY-SAVING SIZES of Anthracite* (Anthraflo models also available for steam and hot water systems.)

ANTHRATUBE . . . A complete boiler-burner unit with induced draft. Delivers maximum heat with hard coal. Compact, neat-looking. Completely automatic from coal bin to ash removal. Provides year-round hot water. Highly efficient. *Burns MONEY-SAVING SIZES of Anthracite!*

MODERN HARD COAL STOKERS specially designed in complete boiler-burner units (*such as Motor Stokor, Electric-Furnaceman and others*), offer high efficiency, are smaller in size and greater in economy of operation. Completely automatic from bin feed to ash removal.

Modern conversion stokers can be quickly installed in your *present* boiler or furnace. Stoker automatically feeds the coal and removes the ashes.

ANTHRACITE (HARD COAL) INSTITUTE

One of the more important moves was that of FHA in quickly rescinding an order designating New York and Washington, D. C., as "high cost" areas under Sec. 203 (b) 2 (D) and Sec. 8 of Title I of the National Housing Act. The first order had been out but a few days when Commissioner Richards called it back in accordance with the President's request that housing credit be restricted. This brief reference to designation of high cost areas under the amended act will be the last heard of the optional provisions for some time.

Fate of Fannie May

The rapidly developing international situation seemed to subdue the importance of the legislation designed to modify Federal National Mortgage Association operations.

Sen. John Sparkman (D-Ala.), chairman of the housing and rent subcommittee which held hearings on the bill — S. 3746 — said he had just about given up hope of getting it through the Senate this session. He was looking forward to committee clearance, however.

Private builders opposed parts of the measure in hearings. They felt it to be unwise and unnecessary to place additional restrictions on the secondary market for government-assisted housing loans until the present program can be fully evaluated. The National Association of Real Estate Boards suggested a joint Congressional committee study of the whole mortgage financing situation. But that was before Korea forced the government's housing agencies to cut back on credit.

Defense Production Act

The President was assured of getting just about what he asked for in the way of new control powers. Some Republican opposition arose after the draft of the big defense production bill was delivered on Capitol Hill. It went too far, some G.O.P. members said. And a few Democrats agreed. But the House Banking Committee, after a few days of hearings, approved the measure. This group eliminated only Sec. 403, dealing with Home Loan Bank Board regulations, and Sec. 412, on commodity limitations.

Public opinion swung quickly behind partial mobilization and enactment of the measure was insured.

Important to architects and builders is the power to allocate materials and facilities on the President's own terms. The word facilities could include production plants. Mortgage lenders eyed closely the provision giving control powers over real estate credit. The President would be permitted to classify real estate transactions and prescribe maximum loans or credit values, minimum down payments, minimum maturities, rates of payment, rules on outstanding credit and related matters. This power would reach into the private financing field.

Consumer rationing and price controls are conspicuously absent from the wording of the new legislation. The Administration insists it is not yet time to call for these. If and when the time does come, Mr. Truman said, he will ask for these controls and manpower controls, all at the same time.

The National Security Resources Board remained the agency to watch. It had a close hand in the preparation of

(*Continued on page 168*)

Pella
ROLSCREENS
FIT ALL TYPES and MAKES OF WINDOWS

ROLSCREENS provide freedom from screen troubles! Once in place, always in place. No putting up — no taking down! No painting! No seasonal repairs! No storage space required. By minimizing window screen maintenance, ROLSCREENS pay for themselves over the years.

The exterior beauty of windows is preserved by ROLSCREENS because they are made of neutral colored AluminA wire cloth and installed on the **inside.** ROLSCREENS cost no more than good quality flat-frame screens. When annual maintenance and labor costs are considered, ROLSCREENS actually cost less than ordinary screens.

Made by makers of
FAMOUS PELLA VENETIAN BLINDS and CASEMENT UNITS

10-YEAR GUARANTEE assures that clients will be satisfied with ROLSCREEN performance.

ROLSCREEN DETAILS IN HANDY FILE PACK
for installing on all types and most makes of windows. Ready for tracing right onto your plans.

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ROLSCREEN COMPANY,
Dept. B-24, Pella, Iowa.

Without obligation, please send FREE new file of ROLSCREEN details and specifications in A.I.A. folder.

Name _____
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City & Zone _____ State _____

NUTONE VENTILATING FANS

easiest to clean...

Give your clients greater convenience by specifying a NuTone Ventilating Fan in all your new home plans. NuTone's exclusive removable center grille (U. S. Pats. Pend.) provides easiest, quickest, safest cleaning of the all-important "grease zone."

Grille removes quick and easy

Grille cleans in a jiffy

One thumbscrew fastens grille

easiest

easiest to install..

Never before has there been a Ventilating Fan like NuTone that's so easy to install. Never before has there been a Ventilating Fan like NuTone so low in cost with so many high-quality features including greater air delivery, silent operation, modern designs and 5-year motor guarantee.

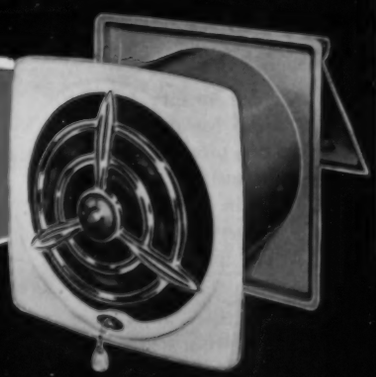
3 screws fasten wall plate

Motor and blade installed quickly

Screw driver ONLY tool required

NUTONE TRADE MARK

U. S. DESIGN AND MECHANICAL PATENTS PENDING



Send for complete specifications, A.I.A. FILE No. 30-D-1; 31-H-5.

NUTONE, INC., Dept. AR6
Cincinnati 27, Ohio

CONSTRUCTION COST INDEXES

Labor and Materials

United States average 1926–1929 = 100

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assocs., Inc.

NEW YORK

Period	Residential		Apts., Hotels Office Bldgs.	Commercial and Factory Bldgs.	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1925	121.5	122.8	111.4	113.3	110.3
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1940	126.3	125.1	132.2	135.1	131.4
1945	160.5	161.7	156.3	158.0	155.4
1946	181.8	182.4	177.2	179.0	174.8
1947	219.3	222.0	207.6	207.5	203.8
1948	250.1	251.6	239.4	242.2	235.6
1949	243.7	240.8	242.8	246.4	240.0
April 1950	246.2	243.6	243.6	246.1	242.5
May 1950	250.8	248.9	245.4	247.7	244.3
June 1950	255.6	254.4	246.8	248.7	245.9
	% increase over 1939				
June 1950	107.0	107.8	88.8	86.4	89.0

ATLANTA

Period	Residential		Apts., Hotels Office Bldgs.	Commercial and Factory Bldgs.	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1925	86.4	85.0	88.6	92.5	83.4
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1940	91.0	89.0	96.9	98.5	97.5
1945	132.1	133.9	123.2	122.8	123.3
1946	148.1	149.2	136.8	136.4	135.1
1947	180.4	184.0	158.1	157.1	158.0
1948	199.2	202.5	178.8	178.8	178.8
1949	189.3	189.9	180.6	180.8	177.5
April 1950	187.9	189.7	180.5	179.5	179.0
May 1950	190.9	192.9	181.0	179.9	180.7
June 1950	192.5	194.9	181.6	180.3	181.3
	% increase over 1939				
June 1950	123.1	134.5	91.0	85.1	91.4

ST. LOUIS

1925	118.6	118.4	116.3	118.1	114.4
1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1940	112.6	110.1	119.3	120.3	119.4
1945	152.8	152.3	146.2	148.5	145.6
1946	167.1	167.4	159.1	161.1	158.1
1947	202.4	203.8	183.9	184.2	184.0
1948	227.9	231.2	207.7	210.0	208.1
1949	221.4	220.7	212.8	215.7	213.6
April 1950	223.1	221.6	215.9	219.1	217.7
May 1950	231.5	229.8	219.8	222.4	221.5
June 1950	233.8	231.0	222.4	226.6	222.5
	% increase over 1939				
June 1950	112.2	115.9	87.4	89.1	87.0

SAN FRANCISCO

1925	91.0	86.5	99.5	102.1	98.0
1930	90.8	86.8	100.4	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1940	106.4	101.2	116.3	120.1	115.5
1945	146.2	144.3	144.5	146.8	147.9
1946	159.7	157.5	157.9	159.3	160.0
1947	193.1	191.6	183.7	186.8	186.9
1948	218.9	216.6	208.3	214.7	211.1
1949	213.0	207.1	214.0	219.8	216.1
April 1950	216.7	211.0	218.1	221.6	218.3
May 1950	224.8	220.4	220.1	223.1	220.8
June 1950	228.2	225.1	221.3	223.6	221.8
	% increase over 1939				
June 1950	116.1	126.7	88.5	83.4	90.4

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then; costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear whenever changes are significant.

A Mistake Was Made!

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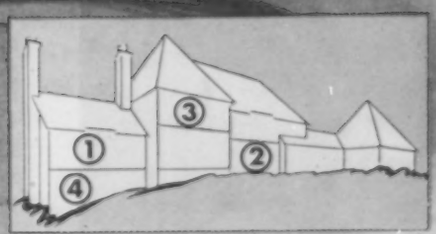
One thermostat wasn't enough!



This Type of Home Needs **4** Thermostats

1. In the Living Room Area
2. In the Dining-Service Area
3. In the Sleeping Rooms Area
4. In the Recreation Area

THE ORIGINAL builders of this lovely home spared no expense on the furnishings and equipment. But it seemed impossible to heat comfortably. When the living and dining rooms were just right, the recreation room was too cold. The bedrooms never got enough heat. When the temperature setting was raised to make the rest of the house comfortable, the living room was too hot. Honeywell control engineers were consulted — found the answer.

To provide real comfort, a home of this type should have four heating zones, each controlled by a thermostat—one in the Living Room area, one in the Dining-Service area, one in the Sleeping Rooms area and one in the Recreation area.

If you are designing a home, don't hesitate to call upon Honeywell's specially trained staff of control engineers. They stand ready to assist you, without obligation, of course. When you specify Honeywell controls, you can be certain that you will get the most faithful controls available for your clients.

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The old and new in Switzerland, from "Switzerland Builds," by G. E. Kidder Smith. Top to bottom, above: village of Sonogno; farm between Appenzell and Hundwil; University Center, Basel. Below: low-cost workers' housing west of Wädenswil

REQUIRED READING

A COUNTRY SUMMED UP

Switzerland Builds. By G. E. Kidder Smith. With an introduction by Siegfried Giedion. Albert Bonnier (605 Madison Ave., New York, N. Y.), 1950. 8½ by 11 in. 234 pp., illus. $7.50.

Anyone who remembers Kidder Smith's beautiful photographs of Brazil in BRAZIL BUILDS (and who does not?) will know what to expect of this new volume. The earlier book was prepared jointly with Philip Johnson, but this one is completely Mr. Smith's work — photos, text, even layout. It was made possible by a Guggenheim Fellowship awarded him in 1946.

SWITZERLAND BUILDS is, of course, pictorially handsome. There are nearly 500 photos, all but a few of them taken by the author. They are of every corner of Switzerland, of every type of building, and together they form a mighty impact. Dr. Giedion, in his introduction, says that when Mr. Smith arrived in Zurich "with an old convertible and a pile of cameras . . . we were rather skeptical when he told us that he intended to conquer Switzerland optically within three months. We knew that, in spite of being a very small country, Switzerland is a rather intricate subject. We must confess, however, that our skepticism vanished when we got the proofs of Kidder Smith's work a short time later . . ."

The book is divided into two sections the first of them dealing with native architecture and the second with modern. Each has its own introduction, and each follows a logical arrangement of material: native architecture by cantons, modern by building types.

"In construction," Mr. Smith says, "the Swiss natives dared limits we find novel today: in simple esthetics they produced designs which make ours effete and self-conscious." His photos lend emphasis to his words, and point up the stylistic differences between cantons as well. Take the pentagonal windowless wall characteristic of higher Fribourg, for example, built to counter the windy rains — "as direct an architectural recognition of natural forces as the exterior sun louvers of the new buildings in Brazil." Or consider the unpainted and unstained exterior log walls in Wallis, which are four to six inches thick for protection against the weather: "The Swiss actually complain that their stern climate deteriorates wood buildings after four or five hundred years! Paint, they claim, would shorten this life considerably." Or again, the stone buildings in Tessin, which "not only epitomize stone in architecture," but "express it with the most intimate reflections of the mountain setting. The rhythms of the roof lines, the solidity of the base mirror the peaks behind. Both in exposition of material and sympathy with setting this is an architecture of great compatibility with its environment."

The section on modern architecture is perhaps less interesting pictorially, because most of the good modern building is in the larger cities — and most of the pictorial "romance" is not. But the section as a whole is if anything more interesting than its predecessor. Mr. Smith's comments on the various types of building are much to the point:

Housing. "Swiss housing, in seeking to keep scale and masses as small as possible, has tended to stress freely planned two or three story housing in the suburbs with higher elevator units only in the city proper. White stucco finish, well pitched red tile roofs, blinds and numerous balconies with flowers are typical of the competent but rarely distinguished solutions."

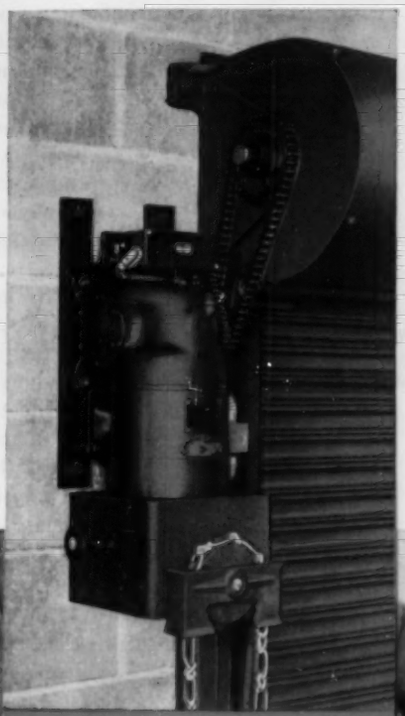
Churches. "There is scarcely a church built in any canton that is not of contemporary design — an architectural achievement unique in religious building of the last hundred years."

Schools. "The Swiss philosophy concerning the smaller pupil introduces a new concept of educational thinking. This sets as its goal the smallest size school building economically feasible. Neighborhood schools of three or four classrooms only are the chief desiderata, and if such a unit is too small to accommodate the population it is paired with another on the same site. Intimacy of scale and a friendly homelike atmosphere have replaced the imposing mass and self-important facade."

Hospitals. "The new Swiss hospitals strive for a humanization of one of architecture's most inhuman forms. Concern for the patient is the genesis of all planning. Sunshine and southerly exposure in all rooms, friendly scale, warm, homelike atmosphere replace the supposed super sanitation of unrelenting white tile and bare buff walls."

(Reviews continued on page 30)

Rolling Steel DOORS



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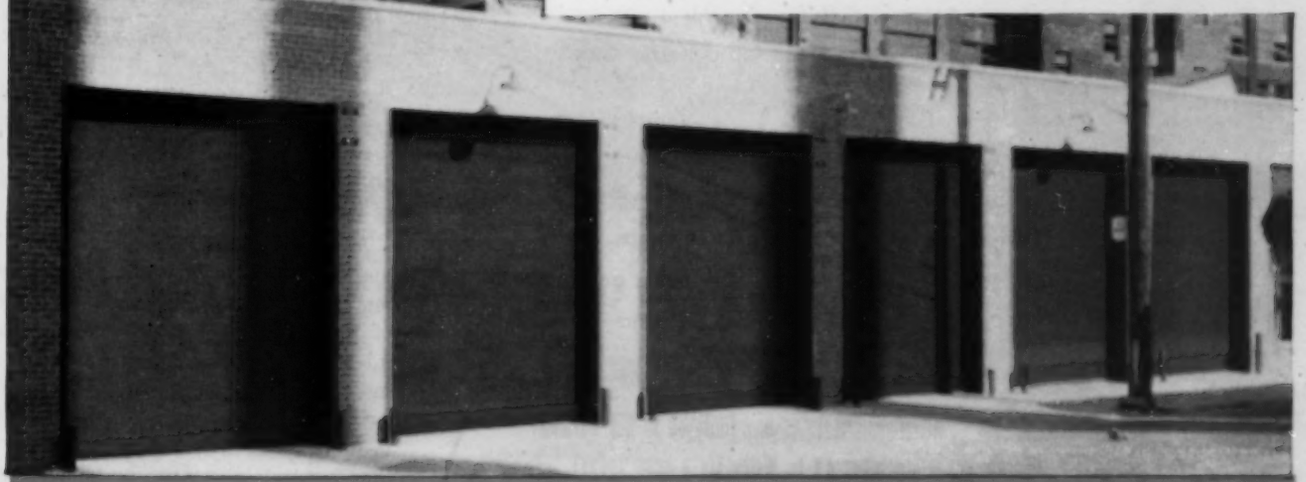

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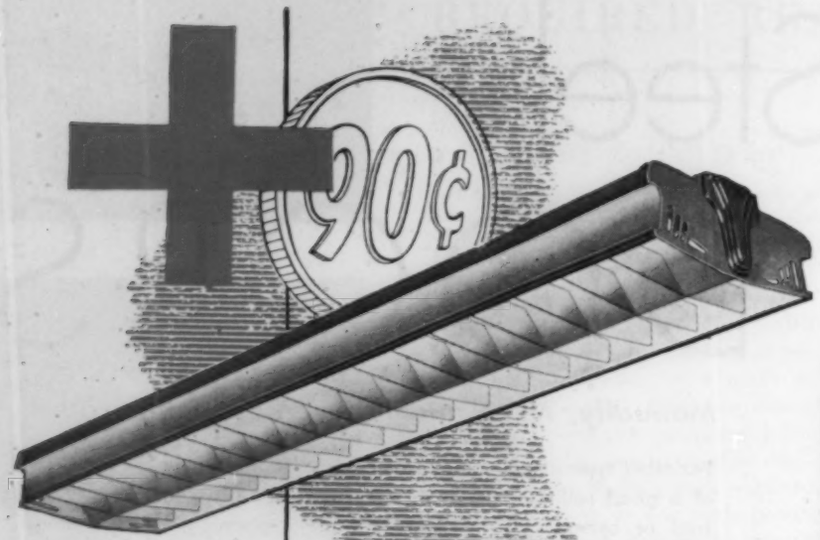
Six Mahon Power Operated Rolling Steel Doors installed in truck openings in The Timken-Detroit Axle Company's Plant, Detroit, Michigan.

MAHON



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REQUIRED READING

(*Reviews continued from page 28*)

BUILDING CODE

Abridged Building Code. Prepared by the Building Officials Conference of America, Inc. Building Officials Foundation (51 East 42nd St., New York 17, N. Y.) 1950. 6¼ by 9 in. viii + 119 pp. illus. $4.50, cloth covered; $3.00, paper covered.

The Building Officials Conference of America, Inc., has prepared this abridged code (preceding a new comprehensive *Basic Building Code*) for national use by communities principally residential in character. Civic, commercial and educational buildings essential to community living are included. Larger projects in such areas and which may use structural steel or reinforced concrete will be governed by stipulations in the unabridged edition.

The code's objective is "to make effective the regulation of building construction possible in municipalities where the facilities for administering building laws may be inadequate, or in which there is no qualified enforcing official to adapt the provisions of the more comprehensive *Basic Building Code* to the solution of local problems."

Minimum requirements for safe construction are established in the code. It is suitable for nation-wide adoption and has as one of its features the employment of performance requirements rather than detail specifications.

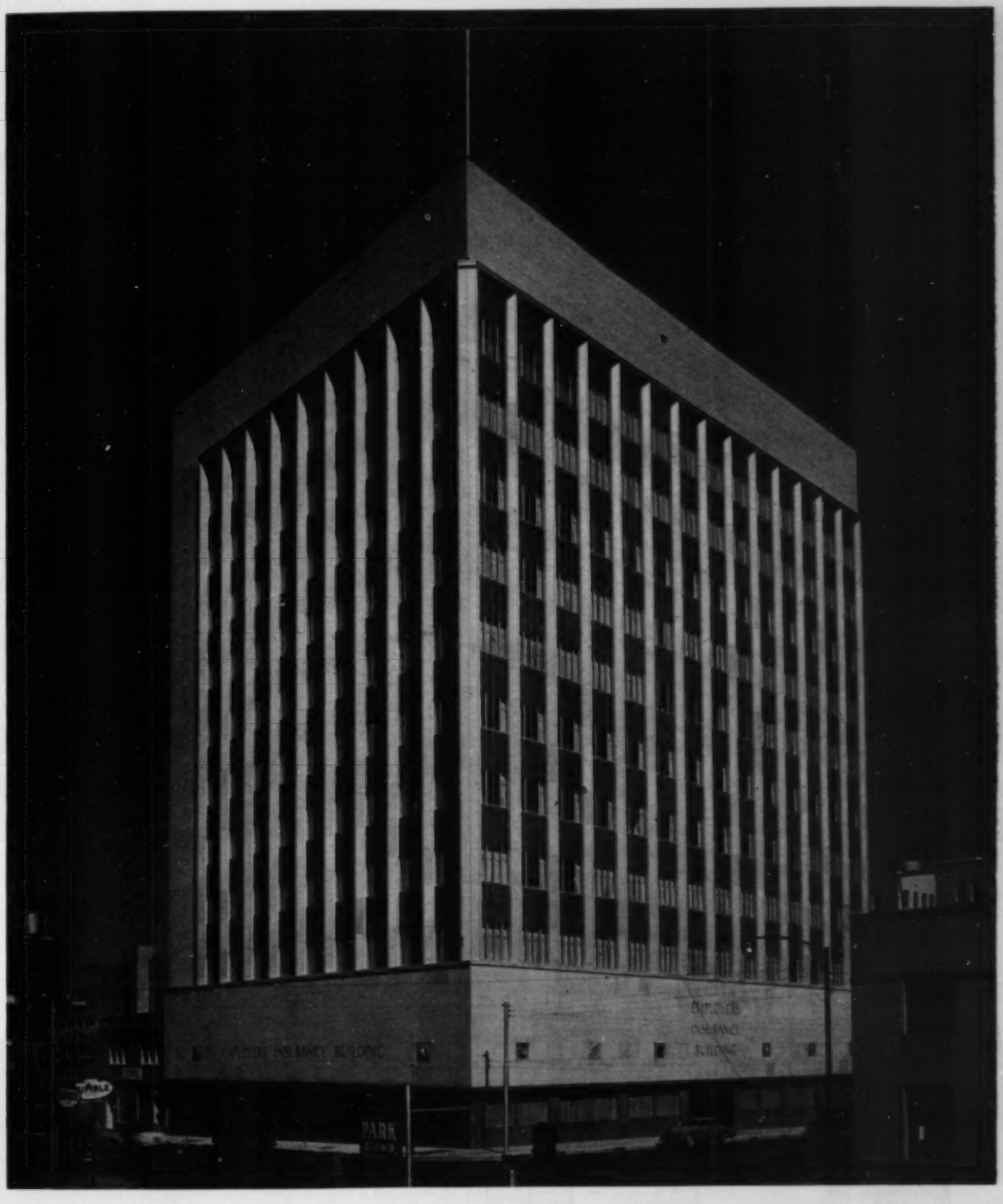
FINANCE

Your Mortgage: What to Do About It. By Frederick H. Allen. Duell, Sloan & Pearce, Inc. (270 Madison Ave., New York 16, N. Y.) 1950. 6¼ by 9½ in. xii + 90 pp. illus. $2.00.

Mr. Allen's book poses and answers very nearly all questions about the business of a mortgage. It is a general explanation of mortgages, and is directed to the average homeowner.

As an example of its scope, the following topics are covered: the nature of a mortgage, title insurance, surveys, terms of a mortgage contract, amortization, interest (how it is computed and paid), foreclosure, the mortgagor's budget, insurance (fire and otherwise), income tax deductions, FHA loans, appraisals, savings and loan mortgages, building loans. Included in the appendix are six mortgage plans of common usage.

The presentation is concise and straight-forward, and the make-up is such that reference is facilitated. Mr. Allen's analysis of the what's, how's and where's of mortgaging is a thorough job.



Laughead Photo

EMPLOYERS INSURANCE BUILDING

Dallas, Texas

George L. Dahl, Architects & Engineers

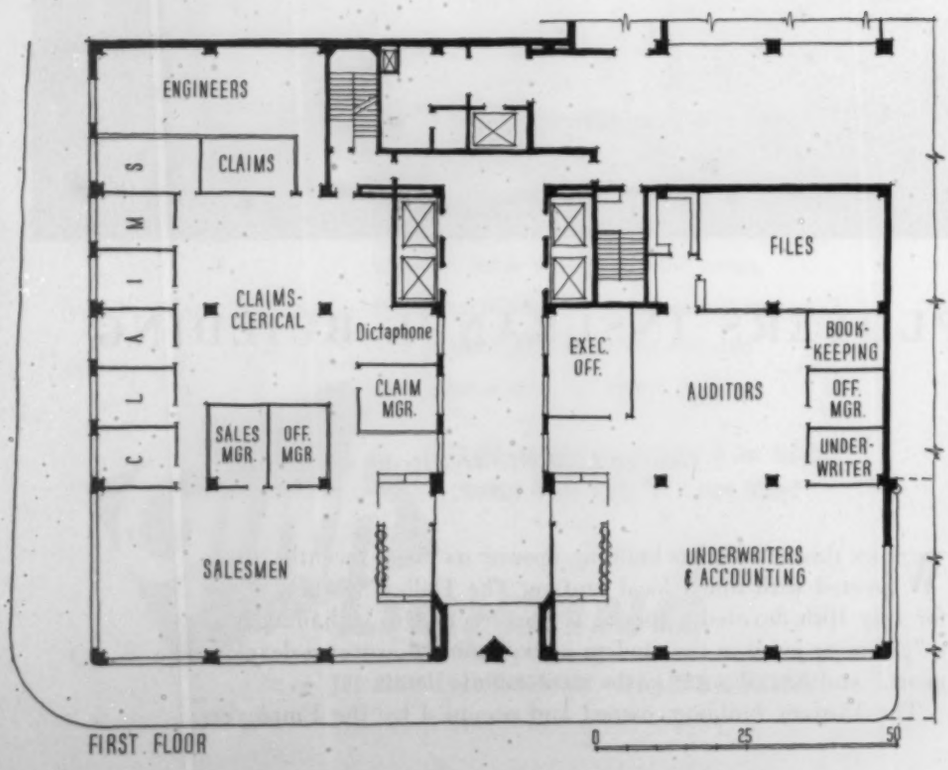
WHEN this new Dallas building opened its doors recently it was greeted with much local fanfare. The Dallas Morning News for July 10th devoted a special 10-page section to it, hailing it as a "gleaming jewel in the diadem of expanding downtown development," and describing it in the most minute detail.

The 13-story building, owned and occupied by the Employers

High pressure air conditioning conduit and piping run down exterior in insulated aluminum pilasters, connect with window units and ducts to interior zones. First floor (below) also has access to basement parking garage

Casualty Company and the Texas Employers Insurance Association, is a striking one. Rising high above its neighbors, it presents on three sides, for most of its height, a solid expanse of aluminum and glass. On the street sides of the ground floor (the lot is a corner one, bounded to the north by an alley and to the west by an adjoining building) the facing is polished Texas pink granite; the large windows are plate glass in extruded aluminum store front sash. The windowless second floor is faced with Indiana limestone on the street sides, and ornamented with terra cotta plaques. From the third floor through the 11th the walls on three sides consist of alternating aluminum pilasters and aluminum windows interspersed with cast aluminum spandrels. Light face brick is used entirely around the top two floors and for the wall facing the adjoining property.

The vertical aluminum fins are not mere ornament, but house the air conditioning pipes serving the exterior zones of the office floors. The building contains many innovations, chief among them the handling of air conditioning and lighting (ARCHITECTURAL RECORD, Jan. 1950, pp. 112–114). Because the owners required maximum flexibility of office space, both air conditioning ducts and lighting conduits were installed in a perforated metal tile ceiling so constructed that the position of outlets may be changed easily without altering the appearance of the ceiling. For the same reason, cellular steel floors were used, allowing electric and telephone



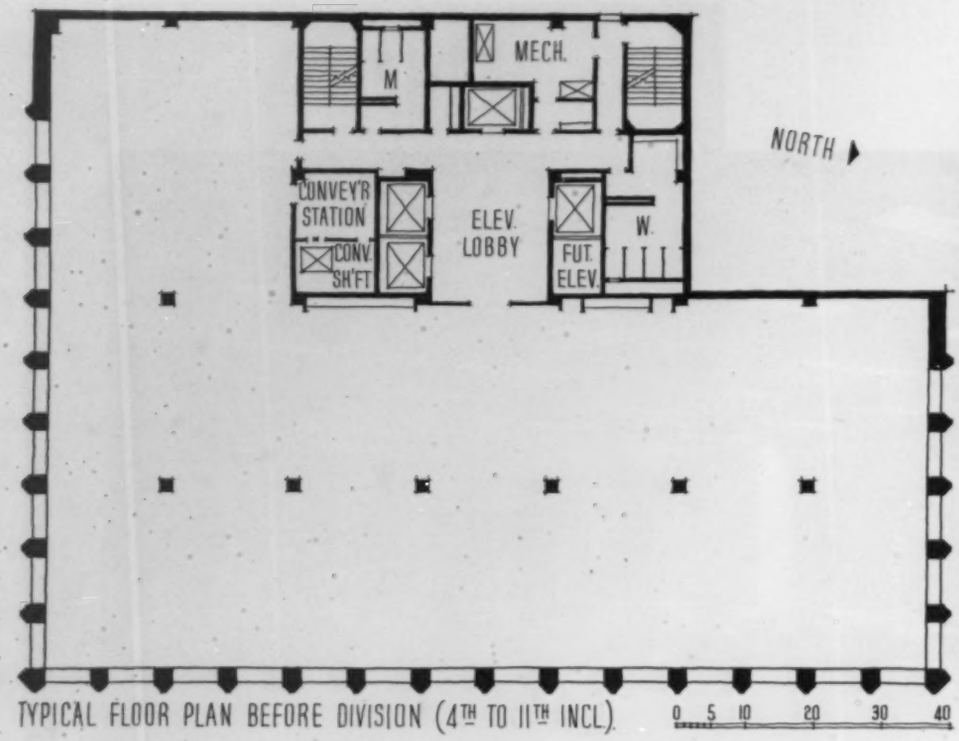
FIRST FLOOR

Main entrance

Laughead Photos

Dallas agency offices, first floor

Typical partitions, first floor

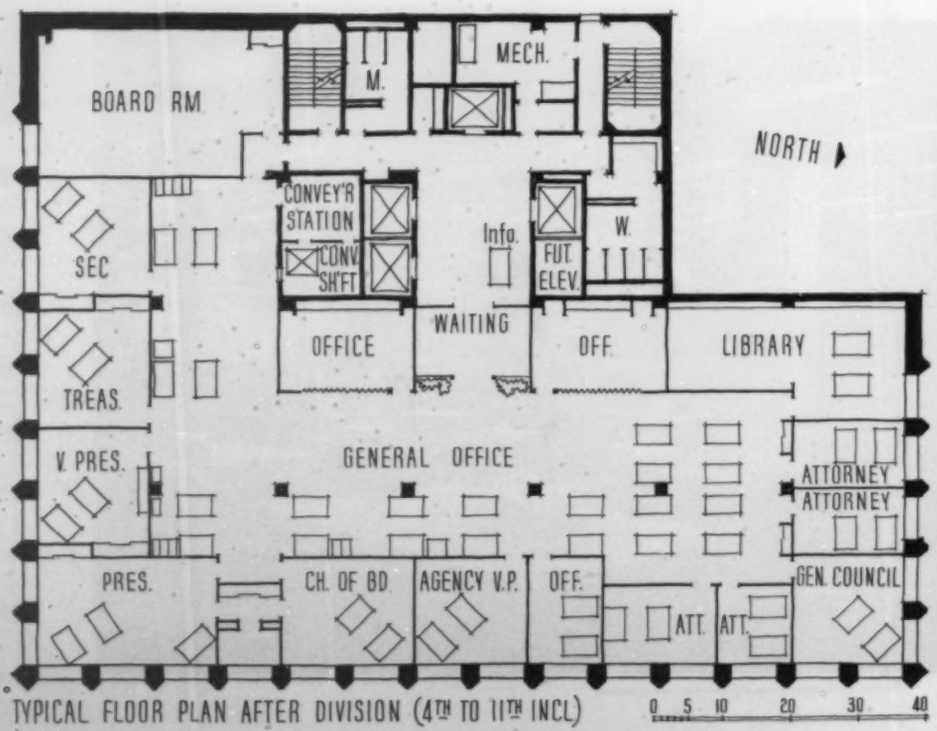


Coffee shop, second floor

Typical plans above and below show unusual openness and flexibility of office space. Plan below is the 11th, or executive floor, but partitioning is typical of all floors

outlets to be located at any desired point. Mechanical equipment is concentrated on the top of the building, increasing the rentable area on typical floors by minimizing the space required for pipes, air shafts and flues, and permitting the use of the entire basement level for a 110-car garage.

The first floor of the building, occupied largely by the Dallas agency offices of the two insurance companies, has an automobile entrance accommodating truck



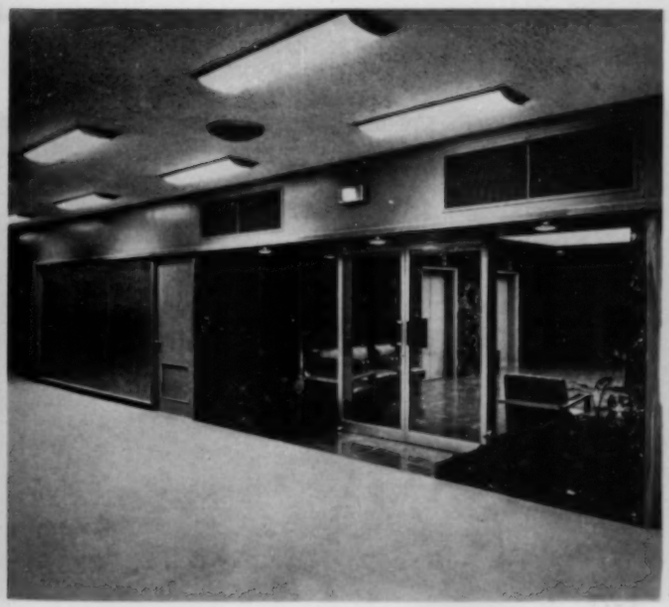
Laughead Photos

Board room, 11th floor (left) and typical office space, sixth floor (right)

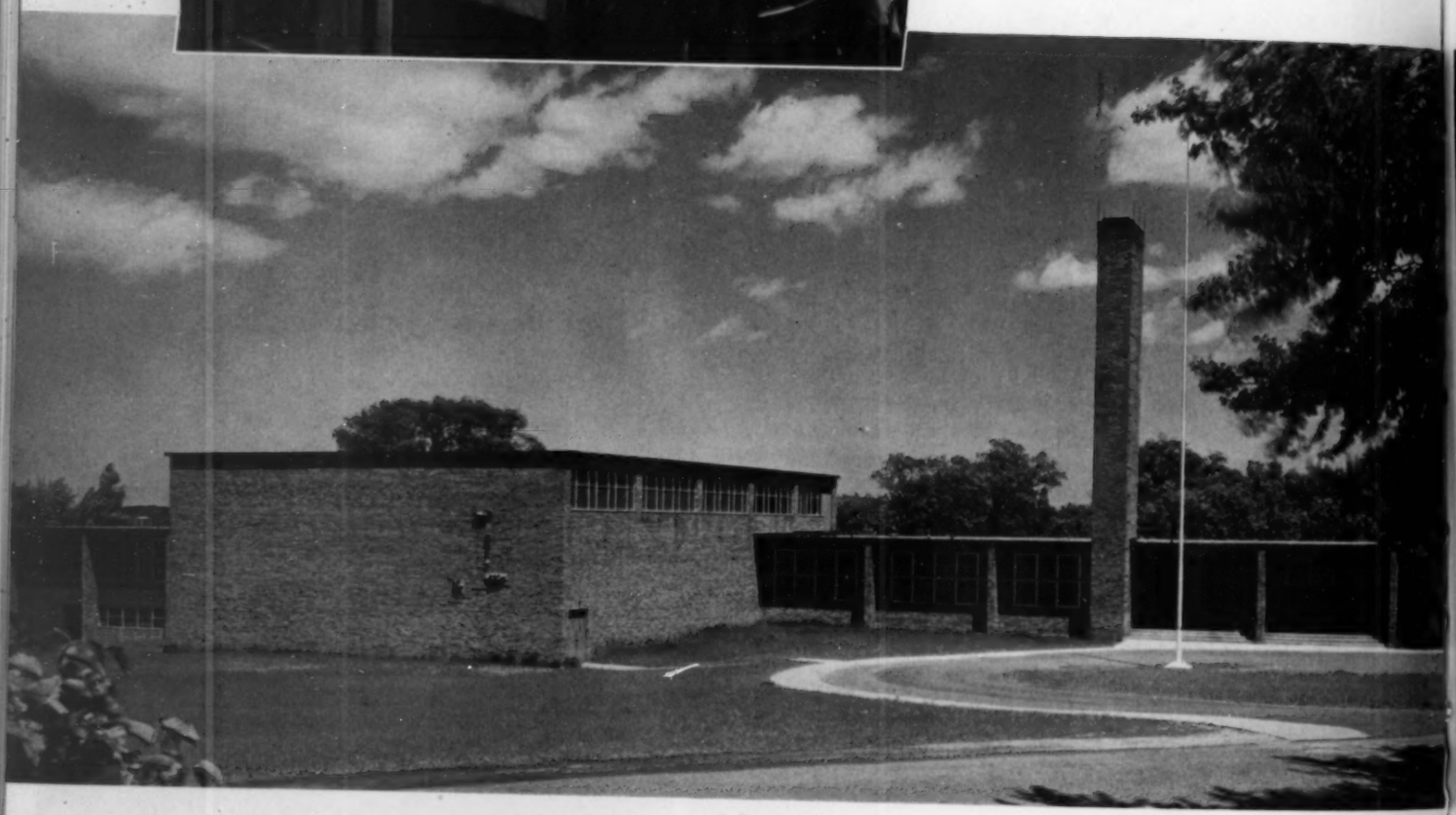
service, and access to the basement garage via a spiral ramp. General employee facilities such as recreation room, coffee shop, conference rooms, etc., are on the second floor; the first aid department and personnel offices are on the third. The equipment room, two stories high, takes about a third of the area of the top two floors, the rest of which is given over to record files and supplies. A vertical electric conveyor connects storage and office areas.

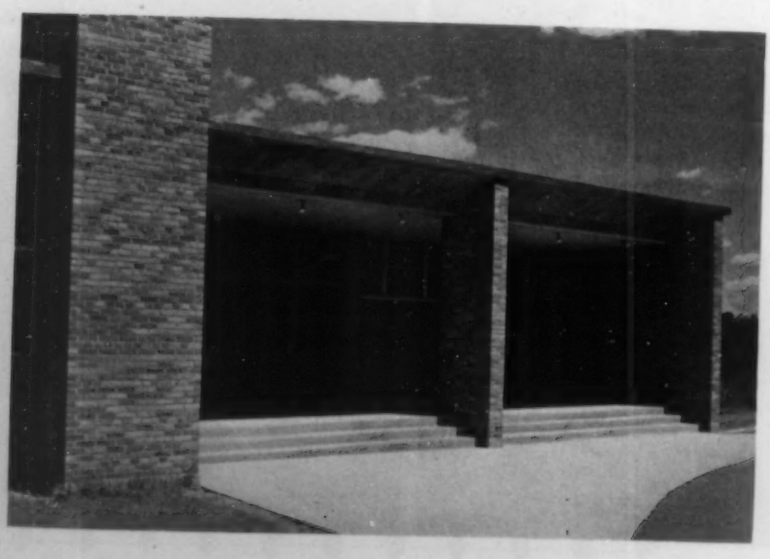
Floors throughout are of cellular steel covered with lightweight concrete fill and rubber tile with the exception of executive offices on 11th floor, which are carpeted

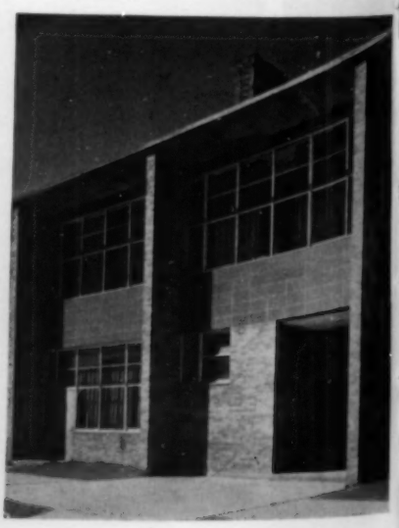
Opposite and below: elevator lobby and general executive offices, 11th floor



INDIAN LANDING E







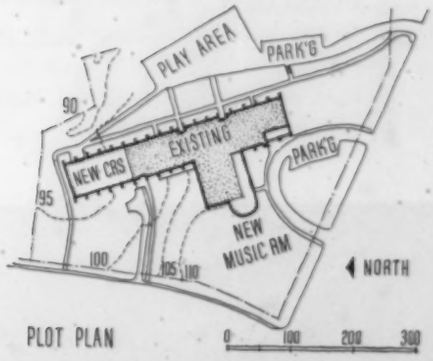
Joseph Molitor Photos

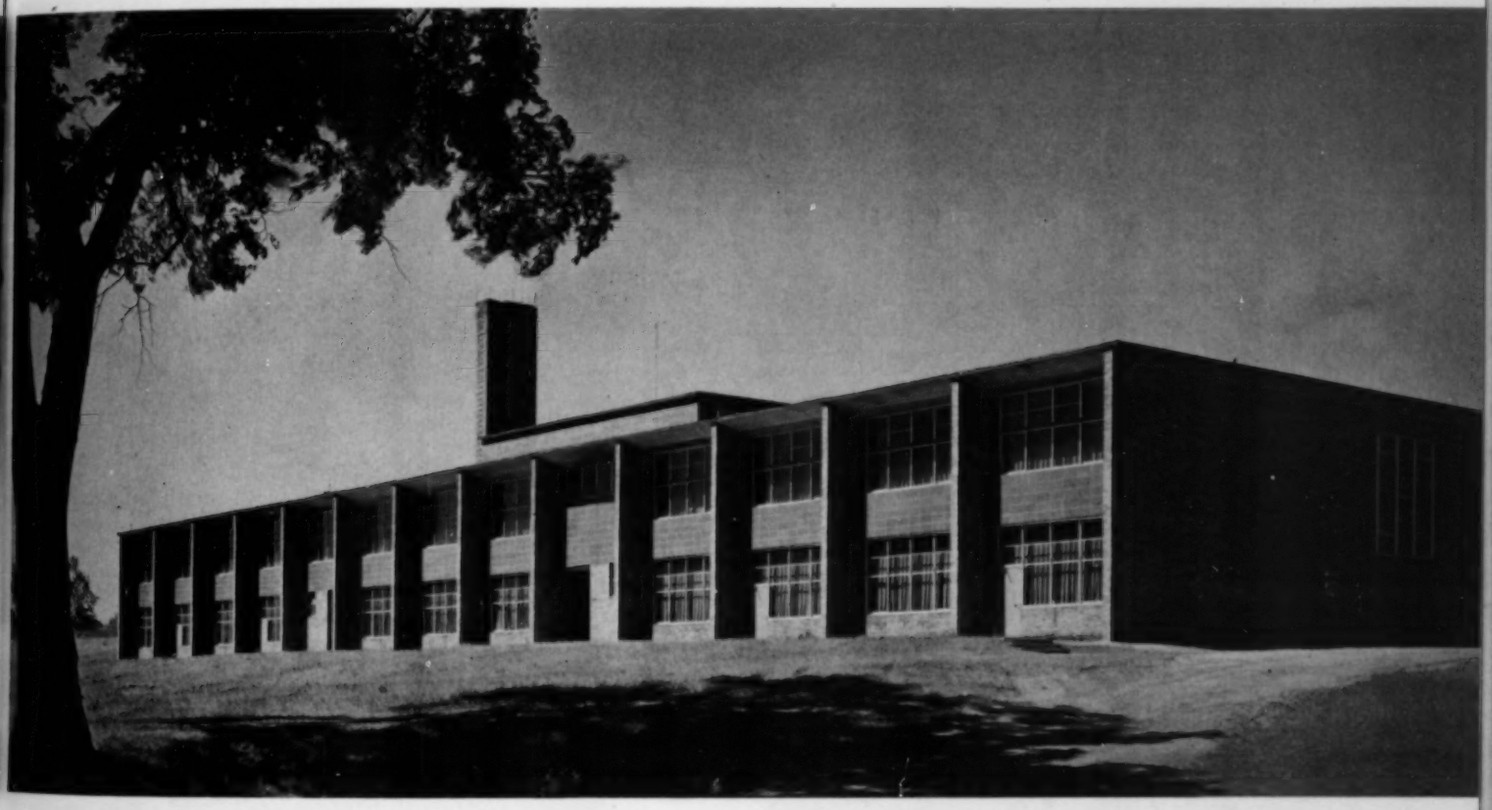
NG

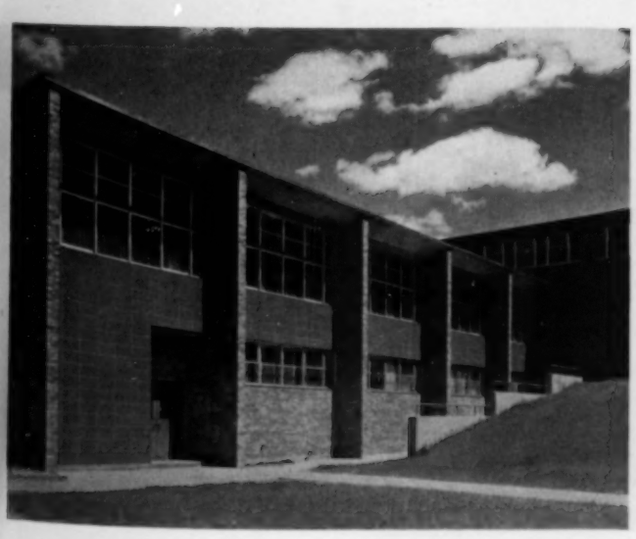
ELEMENTARY SCHOOL

Brighton, N. Y.

Kaelber & Waasdorp;
Perkins & Will, Architects



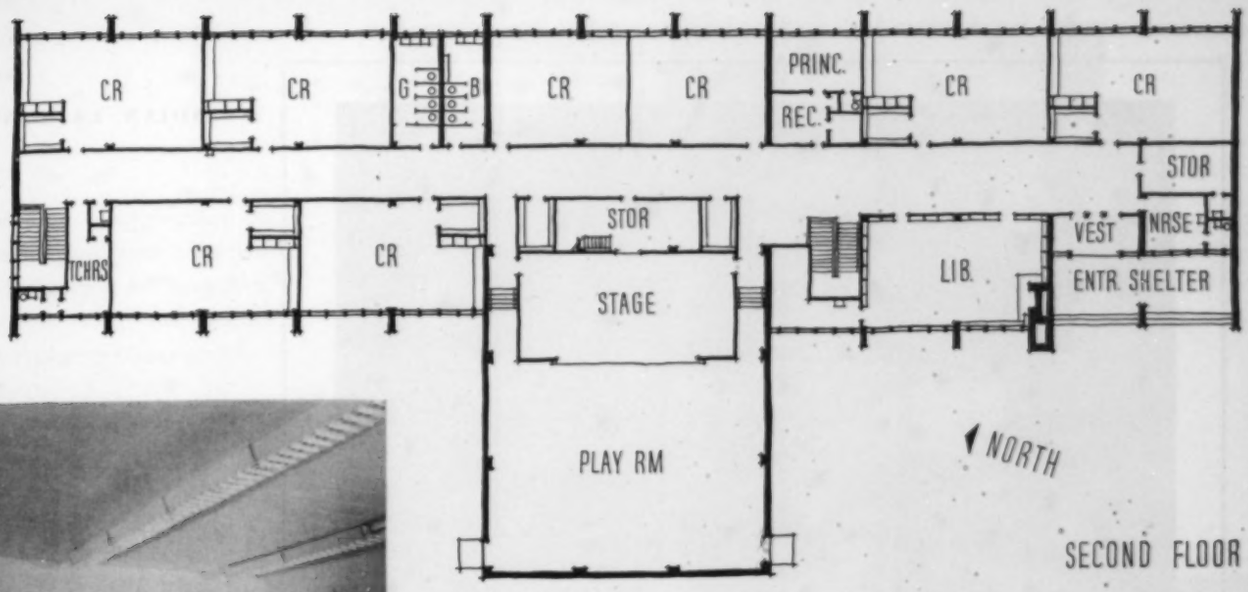




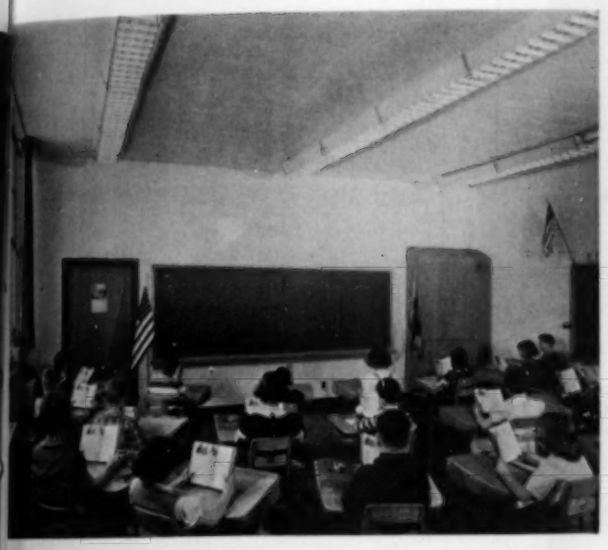
In APRIL 1946 ARCHITECTURAL RECORD published the scheme for this school, hailing it as a transformation in school design for the Northeast. For conservative upstate New York the initial scheme was almost revolutionary; as built, the school, though not as advanced as several now on the boards or under construction, is still far ahead of most in the region. This is true even though many features initially proposed were dropped in the course of design and bidding; some due to public opinion, some to cost. The site, quite restricted, demanded a two-story building from the first, particularly since more classrooms than are provided in the building shown here were known to be needed; additions are now being built. Since the building was opened on February 7, 1949, the community's appreciation of it has grown vastly, and the anticipated additions have been approved earlier than was expected.

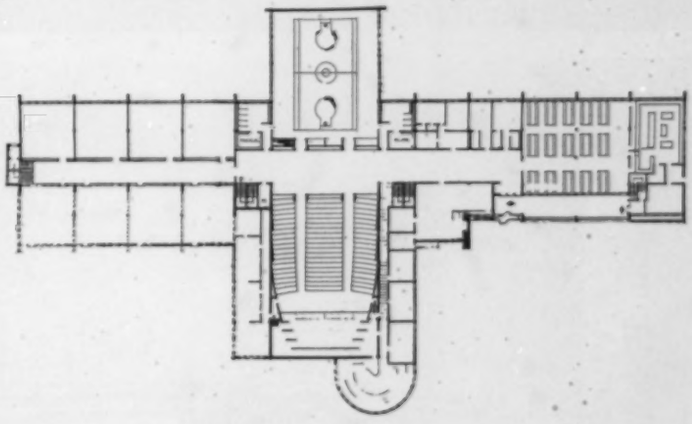
The hazy landscape barely visible through the windows of the kindergarten (below) is no result of poor photography; Rochester, in a suburb of which Indian Landing School stands, is in a cloudy belt; during school months, sunlight appears for only half the school hours; in the poorest month, for about two hours a day on the average. Hence full artificial lighting is required more often than not; some lights are on almost all the time. Bottom photo shows kindergarten coat alcoves; across-page, typical elementary classrooms, quite different from initial concept

Joseph Molitor Photos

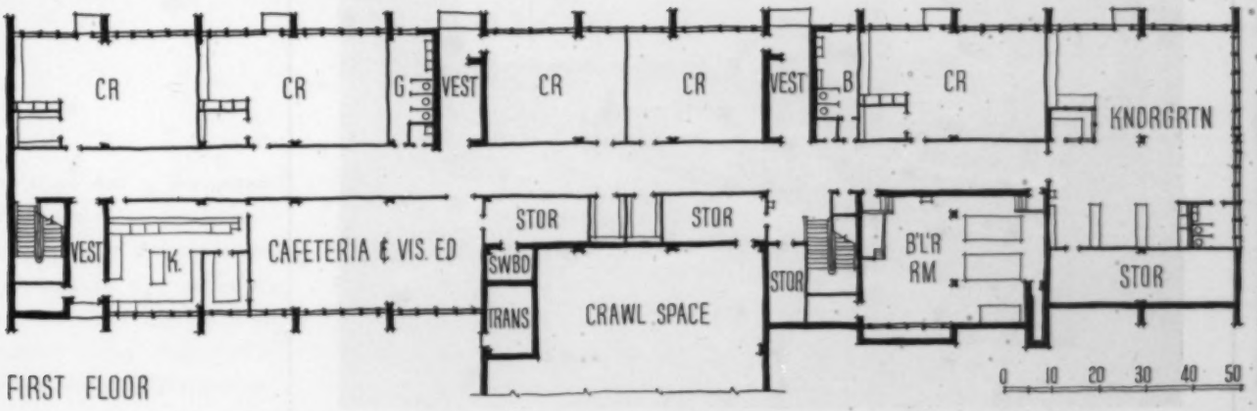


SECOND FLOOR

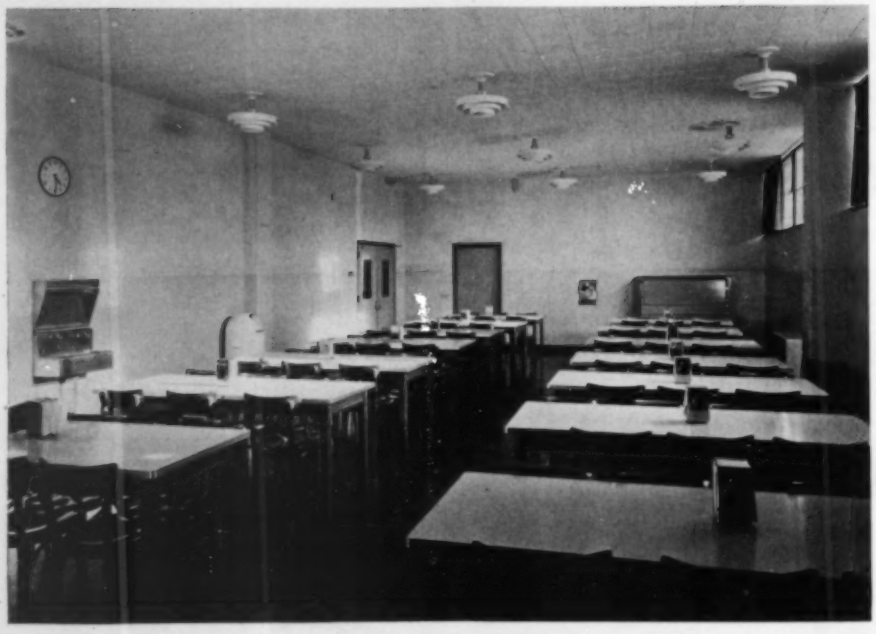




Comparing existing building (large plans) with original scheme (small plan shows upper floor only) indicates extent of revisions. Original classrooms were squarish, low-ceilinged, with walls of exposed cinder block and wood tackboard space. The structural masonry piers occurred between classrooms. As built, rooms have conventional height, width, length, more expensive plaster finish; structural system was retained even though it does not express interior spaces — a situation which many a designer will accept with reluctance, though apparently it didn't bother the School Board.



FIRST FLOOR



Classroom design was not the only change from the original. At left is shown the combination cafeteria-visual aids room which supplants two separate, individually designed rooms. At right is the playroom, in which are combined the functions of gymnasium and auditorium; a separate gym is planned for the future. Of course, neither existing room is quite as satisfactory for its dual purposes as separate spaces would have been; and what they do provide is so superior to what previously existed that hardly anyone in the community knows what they have not. That is the sad aspect of the situation: unwillingness to accept a less expensive finish at a time when any kind of construction was expensive, the decision against square classrooms, and possibly the economics of architectural design (which so often preclude thorough restudy), all conspired to reduce what had been close to a superb bit of school architecture to something substantially less. This is not wholly the architects' doing, and the community does love it — see following pages

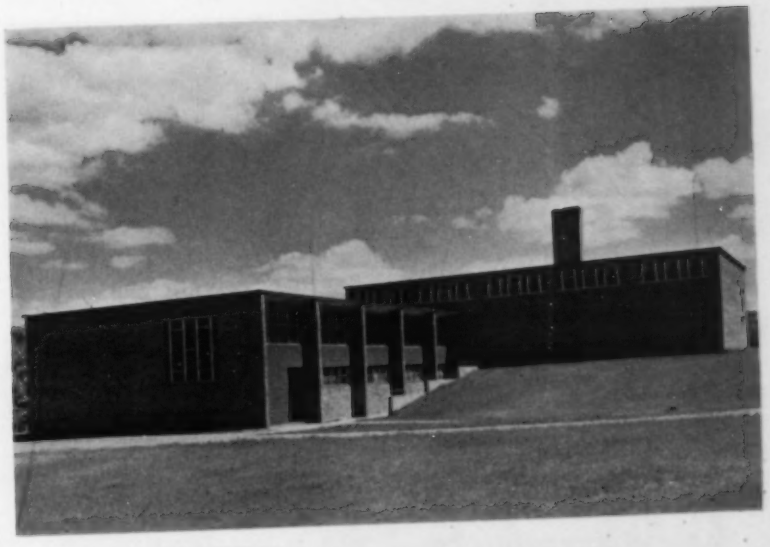


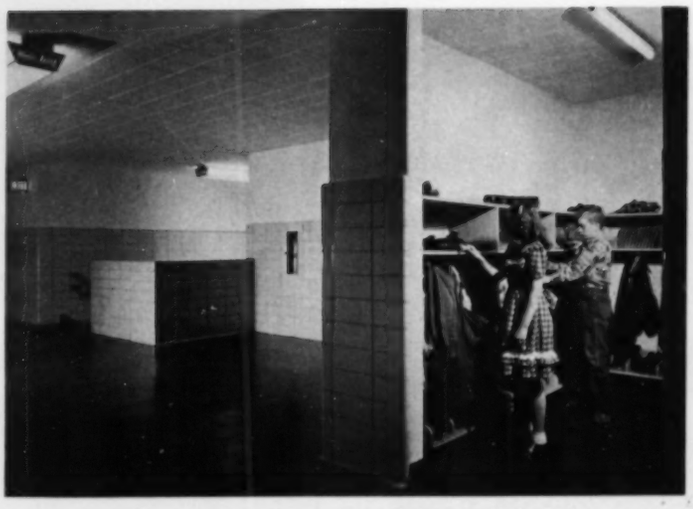
Photo at right shows where additions are now being constructed: more classrooms added to end of wing in left foreground, semi-circular music room and practice rooms added to playroom wing at right

Joseph Molitor Photos

Eventually the stage end of the present gymnasium-auditorium — or playroom — is to become the rear of the auditorium, with stage at opposite end, temporary floor removed, etc.; new gym is to be built approximately where originally intended, in better relation to playground

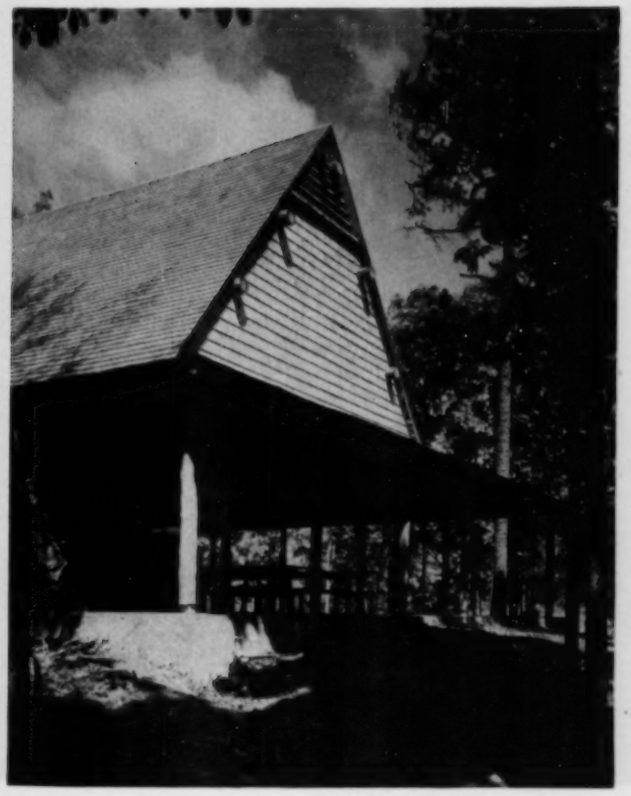
INDIAN LANDING SCHOOL

Yes, the community is enthusiastic, about the ease of housekeeping in corridors which have modern cloakrooms rather than exposed lockers, about lighting, about a school atmosphere conducive to ease of teaching and of learning, as well as to uplift of civic pride. An architect member of the Board of Education says it is a successful piece of architecture; it looks good, wears well in appearance and use, works well in respect to teachers, students and parents, and it came within its budget. What more could one ask? The large stage has been a joy; the protected main entrance is most practical and receptive; the paved playground has proved its worth



Joseph Molitor Photos

Joseph Molitor Photos



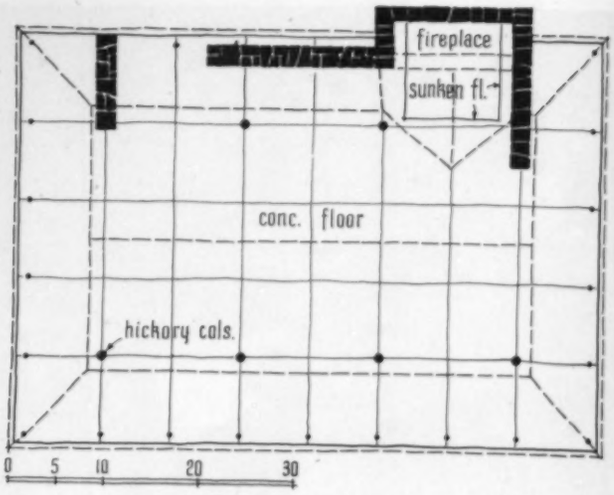
PICNIC SHELTER FOR RECREATION CENTER

The Washington Mills Co.

Mayodan, N. C.

Raymond and Rado, Architects

THIS picnic shelter is part of a large recreation area for the employees of the Washington Mills Co. plants at Mayodan, N. C., and Fries, Va. The site, executed under the direction of the F. Ellwood Allen Organization, park and recreation planners, is well wooded, having been kept as natural as possible. It also includes a bath house designed by the same architects. Roadways, while permitting free "comings and goings," do not detract from the natural quality; the parking lot,



located well behind trees, keeps cars from view. Facilities for swimming, wading, diving and boating are provided at the lake.

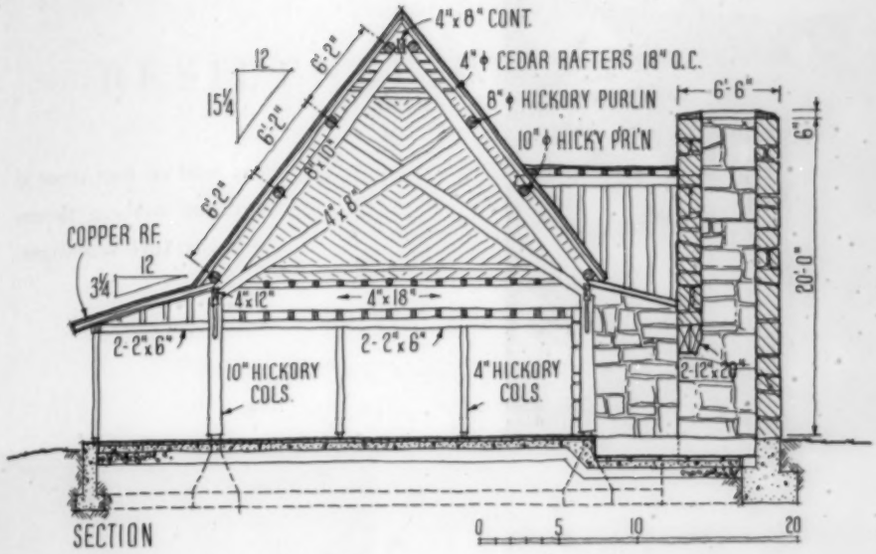
"The idea behind the design of the buildings," says Mr. Raymond, "was to keep the buildings in harmony with the surroundings, by using natural materials, unpainted and unvarnished in a most direct manner possible. Every construction member is visible and every member is working and all unnecessary things have been entirely eliminated. The rhythm of the economical wooden spans, the honesty of the interplay of natural round columns, beams, purlins and rafters have a charm and poetry of their own."

There is nothing deliberately "rustic" about it; there are neither oversized members nor crooked unpeeled lumber.

It is a true carpentry construction, one very suitable to the forms and materials used.

Columns, purlins, rafters and cross bracings are of hickory, other members are of cedar and the main roof is of cedar shingles. The huge fireplace is local stone. Floors are concrete slabs finished in cement mortar or flag stone.

There is simplicity throughout. The "open" nature of the construction unites inside and out and integrates the structure with the entire site.



Opposite page: left, site plan shows entrance as well as road's direct access to shelter, bath house and parking lot. Below, vista through shelter to lake

This page: every structural member is working (photo, below) as borne out in section, left. No member is hidden; any extraneous detail has been eliminated

Joseph Molitor Photos.

Steps lead up from street to the paved entrance terrace overlooking Lake Washington

Kenneth S. Brown Photos

From front door one can see right through the house to rear terrace and garden area

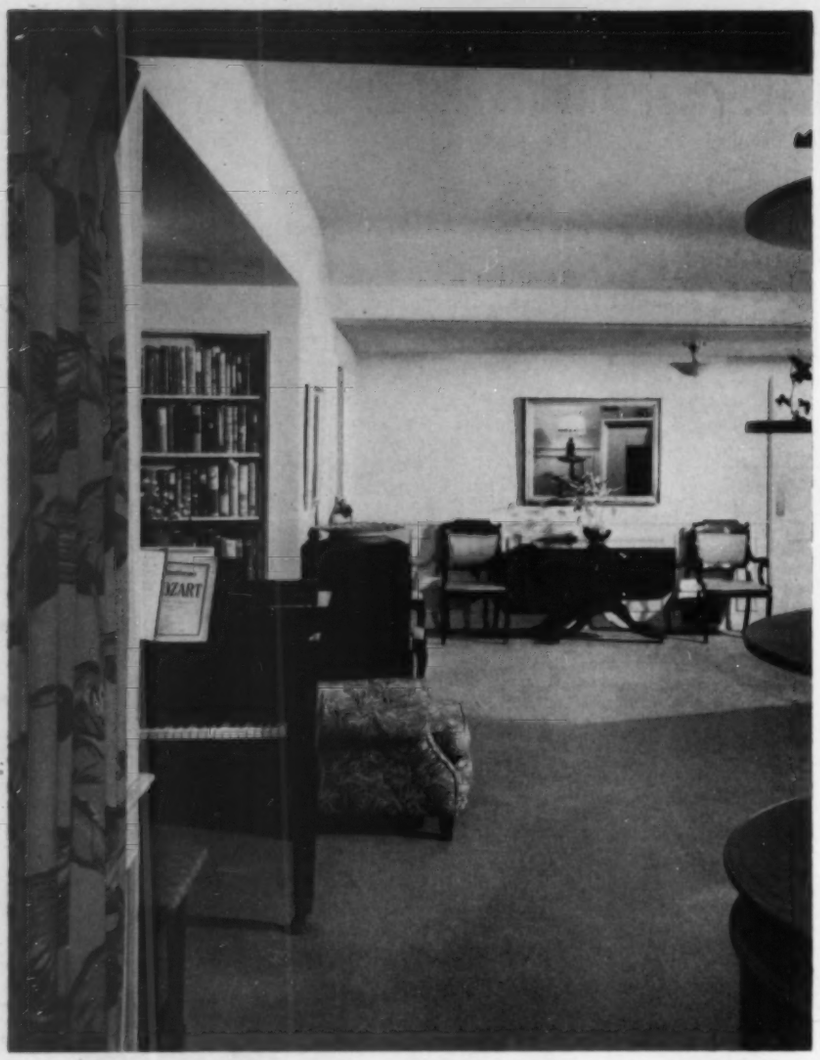
RESIDENCE OF DR. AND MRS. R. L. GLASE

Seattle, Washington

Bain, Overturf, Turner & Associates, Architects

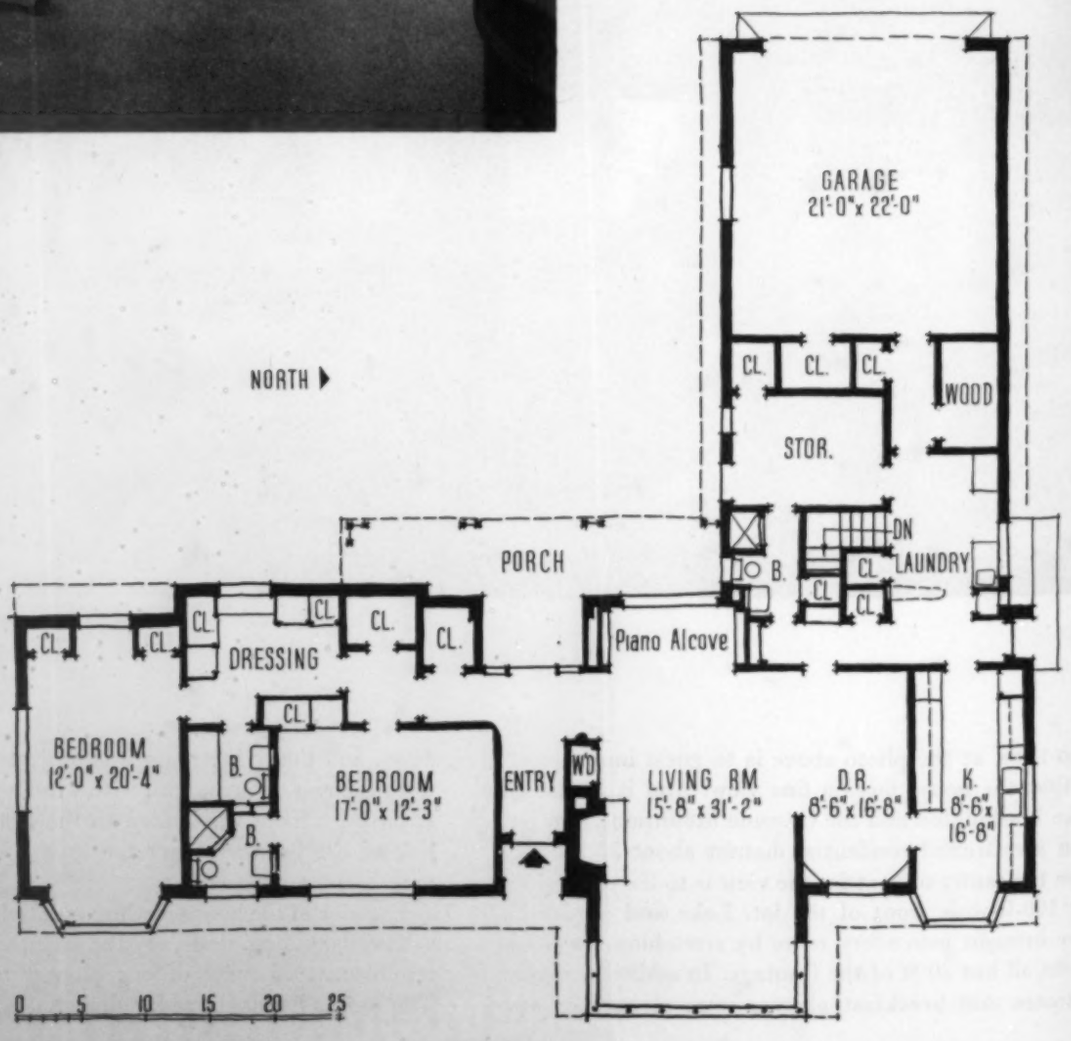
TO LOOK at the photo above is to guess immediately that the house faces a fine view. And it does — of Lake Washington and the Cascade Mountains. The site is in a restricted residential district about 20 minutes from the center of Seattle; the view is to the east, along the 100-ft-wide front of the lot. Lake and mountains were brought into every room by stretching the house across all but 20 ft of the frontage. In addition, master bedroom and breakfast alcoves were given bay windows, and the living room was projected some 9 ft out from the rest of the house, with windows on three sides. A paved terrace was added to the front, and the rear half of the lot was converted into a sheltered garden area.

Exterior of the house is white painted brick and handsplit cedar siding, done, say the architects, "in a manner reminiscent of some of our pioneer western homes." The roof is handsplit cedar shakes.

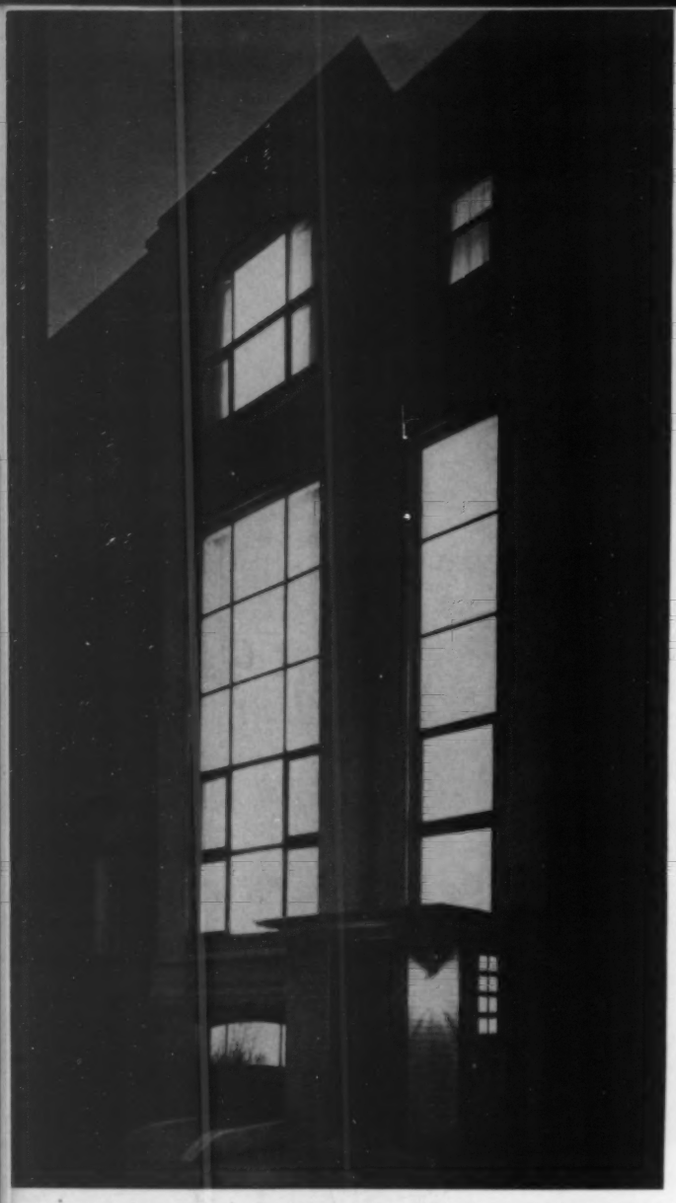


Richard Garrison Photos

Dining end of living room (background, left, and small photo opposite) gains a feeling of separateness by lowered ceiling and stub partition which hides kitchen door from living room. All rooms are amply proportioned, closet and storage space is unusually good. Arrangement of bedroom wing gives both parents and daughter maximum privacy, but at the cost of an inside bathroom for the parents. Storage room in service wing is intended to be used as a maid's room, in which case the lack of direct passage from kitchen to front door might prove to be inconvenient



Front end of living room has windows on three sides to make the most of the view. Bay window in kitchen makes a pleasant and sun-filled breakfast alcove

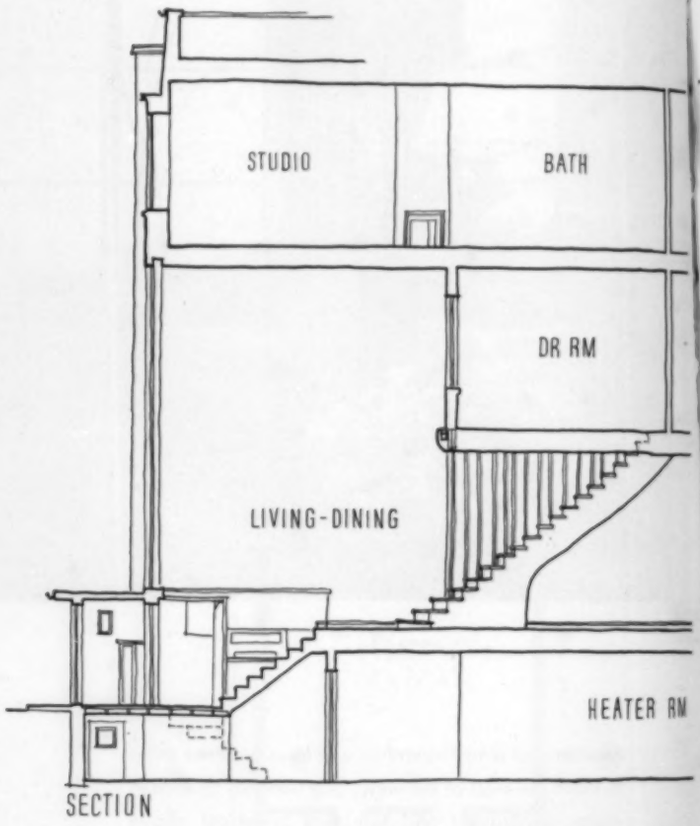


Hedrich-Blessing Photo

OLD CHICAGO HOUSE COMPLETELY TRANSFORMED

Merrill Shepard Town House, Chicago, Ill.

Francis R. Stanton; Stanton and Rockwell, Architects

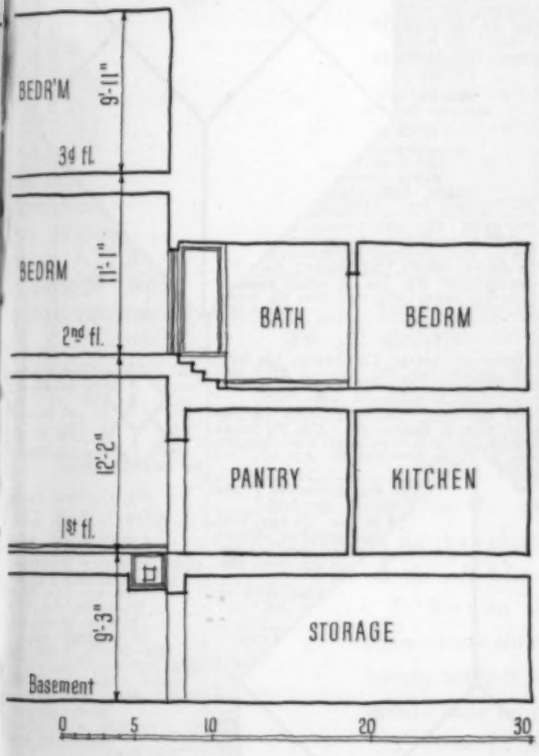


SECTION

A new entrance and towering new sash transformed the facade of the old house in striking fashion. Dreary middle rooms of the first floor were thrown into one large living-dining area amply lighted by 20-ft-high windows on front. "Goldfish" problem was eliminated by use of translucent glass. Back stairs, not shown in section above, permit basement to serve as passage from kitchen to front door when traffic through living room is undesirable. Basement also has a powder room, closets, large storage area, and space for a laundry under kitchen

WHEN the Shepards bought this old house just off Lake Shore Drive it was full of Victorian mannerisms and required a good bit of architectural surgery for conversion to the owners' specifications. Heavy newels, innumerable sliding doors, angular fireplaces were eliminated as a matter of course, but the most dramatic change was the opening up of the first floor. Where there were originally seven enclosed areas there now are three, and almost the entire floor is given over to a large living-dining area perfect for the Shepards' frequent large-scale entertaining. A second-floor bedroom on the front (north) of the house was removed to make that end of the living room two stories in height and to bring light and air to the rear part of the room. The third floor bedroom immediately above was chosen for the required studio.

A new entry at grade level replaced the old stone steps; just inside is a landing, some 5 ft below the first floor, from which stairs lead both up to the living room and down to the basement.



Hedrich-Blessing Photos

APARTMENTS

Continued From Preceding Page

...NK AVE. Lease furnd, 12 rms, 5 masters, $500 mo. Others. Mrs. Boyd, PL 3-5875.

...LLAGE, 1 flight, 7 rm, 2 bath duplex, ...oor ter, common gard; $217 mo. Lease. ...ver Williams, Inc. 6 W 8 St, AL 4-6113.

Apartments of Various Sizes

27TH STREET, 224 EAST
3-3 modernized 1st floor, spacious ...ms, Frig, incinerator, completely fur...hed; ideal location.

Penthouse-Terrace Apartments

Furnished

...ST E, 3-rm, 2 expositions, planted ter...ace, W. B fireplace; immediate; $ ...+, $215. MU 8-0892.

..., off Park. Fine co-op building; ...housekeeping studio with superb 30 ft ...k-up terrace. Sell apt with new fur...s $8,500. Low maintenance; or, rent ...furnished. Bachelor. Y2676 Times.

...RDEN APTS

...es $70.00
...ms.....$86.50
1½ Rooms.....$110.00
...NTAL OFFICE OPEN EVERY DAY
Four beautifully furnished model apartments. OPEN TILL 10 P. M.
Phone JU 8-6100

Apartments

...AVE (76's). Exquisitely appointed ...rrace apt overlooking park. BU 8-0681.

...26 ST, 24 EAST—NEW BLDG.
...noramic view of New York City. 16th ...of terrace facing north, south and ... Spacious living room, dining room, ...3 bedrooms, 3 large closets. Mr. Bingham at building or MR. GREENTHAL

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...AST 46 ST. MU 2-1133

...T, E. bet Lex & 3rd. 1 large room ...nthouse apt. Call BO 9-9766.

...ST W (bet 6th & 7th Aves). 3½-...m terrace apartment and 3-room ...house apartment with large terraces, ...burning fireplaces, large living rooms, ...pourous, unusual. $300 and $250. Call ...-9650 Monday.

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TRULY
...OUR DREAM APARTM...

5-ROOM

DUPLEX PE...
...ITH 2 PRIVA...

...ight, spaciou...
with Dinin...
3 Bed...
3 Ba...

...What a home! ...ocated atop a ...ng on the pre... ...ast Side—enhanc... ...f landscaped g... ...iver views. Inn... ...ences include a ... ...itchen, complete... ...electric dishwa... ...onal maid serv... ...arage space for y...

RENTAL $350 M...
September Occupan...
...hone Mr. Cuskley, Agent. TR...

...ST, 65 EAST
Lovely 5-Room Penthouse with large terrace
Spacious 2-bedroom layout. Newest features throughout. ...diate occupancy. Supt on premises or ...chilling, Pease & Elliman, Inc. ...Madison Ave. ...TE 8-6800

...AST 173. 4 large rooms, large ter...e $140, gas and electric included. ...6166.

...OKLYN HEIGHTS 2 Pierrepont St. ...RM CORNER TERRACE APTS, ...fireproof bldg; magnificent view of ...r; nitra-modern kitchen, GE dish...r. 7-RM PENTHOUSE TERRACE ...available. TR 8-6222

PARK AVE., 812
Southwest Corner 75th St.

TRIPLEX
...ENTHOUSE APARTMENT
12 Rooms, 6 Baths
Including 4 Master Bedrooms

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...MMEDIATELY AVAILABLE FOR SALE
...nder Modern Cooperative Plan ...o Residents of N.Y. State Only)

PRICE $80,000
Monthly maintenance $[illegible] ...efore allowable tax deductions.

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16-Story, High Class Apt Bldg.
24-hour service
3 large, light rooms, 3 baths, 9th fl. Ideal apartment for Psychiatrist, Psychologist, Neurologist, or similar. Available Aug 1.....$300
Apply Supt, Premises, or PL 3-9538.

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PROFESSIONAL SUITE

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...90'S W. 4 ROOMS; MODERN BLDG. Suitable professional & living; $125 month INQUIRE MISS KANE
PEARCE & MAYER, 32 W 72, EN 3-4100

90'S E. Vic Doctors Hospital, ground floor, 3½, $125, residential. 1737 York Ave or TR 9-5900.

91 ST—328 Columbus Ave—2 Apts 6-room front. Ideal professional or business or will rent as unit, (1) prof, (1) residential: $125 & $100. Supt premises.

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...67 ST, 33 W. Beautiful duplex ...studio apt; 7 rms, bath, and ... Double height, north light, st... ...10th floor; wood-burning firep... ...per annum. Vollmer, MU 2-...

...161 ST, 867 W. Studio apa... ...skylight, north light, ri... ...dressing rooms, kitchen, $85 ...Monday. LD 9-5515.

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Apartments, Three, Four, Five Rooms

PARK AVE, 565 (62d)
NEW 3½ ROOMS & BATH
Light, Sunny Front Apt
Rental $270 Month
LLOYD WINTHROP CO
630 Broadway GR ...

SUTTON PLACE. Beautiful new ... ...bedrooms, 3 baths, 16th floor, ...view river; $5,000 year. PL 3-...

UPTOWN. Sublease 3½ ... ...ventilation; new building ...

WASH HTS. 3 rooms, el... ...couple, modern conve... ...help supt. References ...

WASHINGTON SQ (near) ... ...thru, large living room ...space, 2 bedrooms, kitch... ...dous closets. Overlooking ...Call weekdays. CHelsea ...

MODERN 4-room garden ... ...Floral Park, L I, 30 min... ...tion. Exceptional conve... ...4-6 rms, Manhattan up to ... ...6123 evenings after 6 o'c...

2 apartments, Brooklyn ... ...ms, and Riverside & 115 ... ...Reasonable. For 3½-4 or part ...house. $1061 Times Downtown.

...OM, MODERN, ELEVATOR, $81 ...or 5-6 Manhattan up to $80. ...Write Raynor or See Supt. ...501 W 184 St.

UNFURNISHED rooms, 2 bathrooms, attractive rent for 3½, ...dham-Kings-bridge location preferred ...A 9-2534.

3½ ROOMS, switchb... ...Washington Squa... ...rooms, Manhattan ...

SWAP 6 rms, ...downtown.

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Apartm...
1st to 16... Interest'g ...

1 ST. 182 ... ...ern, $65.

3 ST. 179 ... ...ette, all ... Supt. AL 4-...

5TH ... ...Apts to be re... ...ge park, mode... ...50. 2 Rms fro... ...Premises w... ...or TR 9-...

... 2-room modern apt, full ...diate; $72.50. Inq Supt.

LARGE MODERN 1½ ...ette, 4 closets; immediate ...3 after 5 P.M.

T GRAMERCY PARK ...-STORY BUILDING ...ge living room, ...bay, full kitch... ...$125. Agent. G...

230 W. Mod... ...an new e... ...S. SUP... ...m, kitc... ...(bet ... ...Co. ... ...occupied ...m, bedr... ...k closets, ...immed, MU ...

56 ST ... ...Small 2½ wall... ...56 ST, 160 W. New ... ...ern 13½, $75-90-$... ...58 ST, 154 W. 2 rms ... ...elev apt bldg; 24 h... ...Reasonable rent. BOC...

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Marvelous Valu...
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BRAND ...
2-ROOM ST...

You'd never im... ...plete home coul... ...two-room apart... ...kitchen boasts th... ...ment. Besides t... ...ing room there's ... ...bay, dressing room, ...storage closets. For ... ...ment there's a full ... ...scaped gardens, a sun d... ...maid service and a garag... ...the premises.

ONLY $150 MONTH

Mr. Cuskley, Agent TR 9-3400

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92 ST, 7 E. (OFF 5 AVE)
APT AVAILABLE—DESIRABLE ADDRESS
Cheerful 2½ rms, tile bathroom, kitchenette, NEWLY REMODELED, $135 mo lease.
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...arming 1½, 2½ from $... ...ing. Seen 11 to 4 ... ...Co, 105 E 17th. GR ...

...st End

...TEL MARG...

...DOMESTIC...

...NISHED 2... ...bedroom, ...pantry wi... ...diate occupan...

...TH, 16 W. 2 ... $115 month. W...

98 ST (734 ... Modern, 1½ room...

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FIFTH A...
Between 7... Mansion bet...
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Housekeeping ... Sun Deck—... ...Ready Octob...
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New elev bldg, 1-room Pullman kitchenette, bath & shower, $85. Also 2½ rooms, corner apt, $135, 2-yr lease, 1 mo security. See S... 32 Downing St, Apt 1C. WA 4-9...

...ST, $115, Attractive 3 rms, ...l imprvts, also furn.

...3d Ave. 1½ rms, mod... ...mo, including utilities. ...room, new remodel, ...ublease from Sept.

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...e C...

...ms.

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SEPTEMBER OCCUPANCY
3 Rms from 107
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The latest innovations in house construction. Convenient transit and shopping. Modern elevator. Modern tile kitchens many other features

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...87 ST W ave. One ... also two 3½-rm ... ...vator building; immedi... 881 1st AVE. AT ...

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MANHAT...
HOUS...
65th to 66th St, 2d...

A new group of ch... ...dividual apartment... ...a delightful garde...

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4 rooms (co-op), living ... and 1 bedroom, facing ...
LOW MONTHLY MAINTENA...
ATTRACTIVELY PRICED
Sundays, 10-5, SC 4-...
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60'S, E (5TH)—4TH ...
(2 Bedrooms) Aug 1 ...
$250 Month, Lease. WA ...

60'S (off 5th). Spacious 5 ... duplex, avail immediately, ... living; others, June Nelan, ...

63 ST, 33 EAST
3 ROOMS, NEW BUILDI...
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63D EAST

Live where your wi...
look out on an ac...
Private Landscaped ...

3 ROOMS
IDEALLY PLANNED ...
COMPLETE LUXURIOUS ...

The joy of moving into ... new apartment is accentua... by many unexpected ins... You'll be delighted with ... cious living room, large di... lery, the cheerful bedro... luxurious bath. There's ... kitchen and plenty of room... Optional maid service a... space are available.

A REAL VALUE A...
$187.50 PER MO...

Renting now for September ...

Call TR 9-2400. Mr. Cusk...

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67 ST, 40 W. Co-op, fireproo... baths, wood-burning firep... $7,600, maintenance $95 mo...

68TH ST nr Central Park. 4 ... mediate possession. Quiet, ... house. Rental $3,822.04 per a... Elliman, 630 Madison Ave...

Apartment Houses

Manhattan and Br...

GREENWICH VILLAGE, Cor... story, 24 apts, 5 stores; ... Price $50,000, terms.

...apt. Price $21,000, terms. ...5s & store, 4/6s, all imp. ...Pros 6 rms. Pr $13,000. Cash ... PRESTO, 164 ...ECKER. ...

GREENWICH VILLAGE, Blee... ner, 6 stores and 25 apartm...

THE CASE FOR BETTER HOUSING

APARTMENTS

SPACE for adequate living, strange to report, seems to be America's greatest need. The wealthiest nation in the world has built its living accommodations progressively smaller until, health authorities assert, inadequate housing has become a threat to mental and emotional health.

It seems timely to review standards of housing, to see especially if this trend toward spatial niggardliness might not be reversed. That is the basic purpose of this Building Types Study. While apartments — the chief offenders — are the primary concern of the study, it is impossible to limit the testimony strictly to multi-family dwellings. Indeed health authorities (next page) state that minimum standards "call for about double the space furnished in a great volume of recent speculative building."

It isn't as if the country couldn't afford it. It isn't merely the underprivileged who suffer in cramped rooms; indeed many slum buildings offer plenty of space — maybe that's why their occupants cling to them so stubbornly. Sad to relate, FHA standards for private construction are in many instances below the PHA minima for public housing — and the best of public housing projects are cited as too small, "by 25 per cent." The fact is that spatial inadequacy is a long-term trend, made only a little worse by high building costs and a rash of "608" apartments, or, incidentally, by current restrictions.

The subject is handled in the study in three separate texts:

1. SPACE is our great need in housing — a digest of a recent report, "Planning the Home for Occupancy," by the Committee on the Hygiene of Housing of the American Public Health Association. The report speaks quite positively on the need for bigger if not better housing.

2. We can afford it. Thomas S. Holden, president, F. W. Dodge Corp., shows that shelter costs have dropped, over 40 years, from 19 per cent of the family budget to 9½ per cent. Together, alcoholic drinks, tobacco and amusements take more of our cash than basic shelter.

3. How to achieve something better. Miles Colean, housing consultant, shows that this problem quickly settles down to getting along with the government, and tells how the architect with the new idea might expect to fare with the authorities, and how he should proceed.

It has been difficult to find apartment projects to match the objectives of this study. It is only recently that builders have been realizing to what extent the 608 buildings are facing obsolescence, and thinking of designs with long-term acceptance. Insurance companies always have thought in these terms, and one project (page 132) shows what some of their heaviest cogitation on apartment layouts has produced. Other projects show current moves in the direction.

Architects may well do some serious thinking on this whole matter of apartments *for people*. It may have been necessary to compromise with human requirements in a period of housing shortage. But that pressure is off. The next pressure is likely to be a new cry for space to turn around in, for privacy and peace and quiet, for some chance to get outdoors occasionally; in short, for better design. Architects should insist on some of their own kind of thinking, and, who knows, perhaps help save our sanity.

— Emerson Goble

SPACE FOR LIVING, PLEASE!

Selected quotations from a pre-release of "Planning the Home for Occupancy," by the Committee on the Hygiene of Housing, American Public Health Association.

The problem of adequate space here discussed is the most vital challenge which our housing design of 1950 has to meet. During the past half-century, our progress in home sanitation, in heating and ventilation, in improved household equipment has been revolutionary. In the same period, however, we have been retrogressing in space provisions to an almost equally phenomenal extent. Normal and happy and fruitful family life is possible without modern plumbing and deep-freeze equipment. It is not possible without a reasonable modicum of space.

The most serious problem which confronts us is the trend toward reduction of the total space available to lower and lower levels. As one drives through the suburban areas where active building has taken place, it is often difficult to determine which is the house and which the garage.

The sense of inferiority due to living in a substandard home is a far more serious menace to the health of our children than all the insanitary plumbing in the United States.

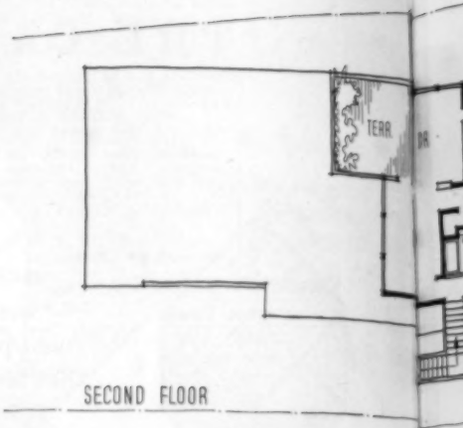
It is not always clearly recognized that mental and emotional health is quite as important as physical health. The average community must provide almost as many hospital beds for mental and nervous diseases as for all other types of diseases taken together. It is believed that the same ratio holds for the minor emotional ills which, in some measure, handicap every family, in comparison with non-hospitalized cases of diseases and defects of other types. The frustration which results from overcrowding, conflict between the desires and needs of various members of the family, fatigue due to the performance of household duties under unfavorable conditions — these are health menaces quite as serious as (if less obvious than) poorly heated rooms or stairs without railings.

The homes of America should be planned for the families which are to live in them, and one of the first conclusions to be drawn from our study is that this ideal has been far from realization. We have been deplorably hypnotized by the fact that the average family in the United States is made up of 3.6 persons.

We have computed total floor areas for those functions which we consider as fundamentally essential in most localities, if the objectives of healthful housing are to be attained. These basic totals are as follows:

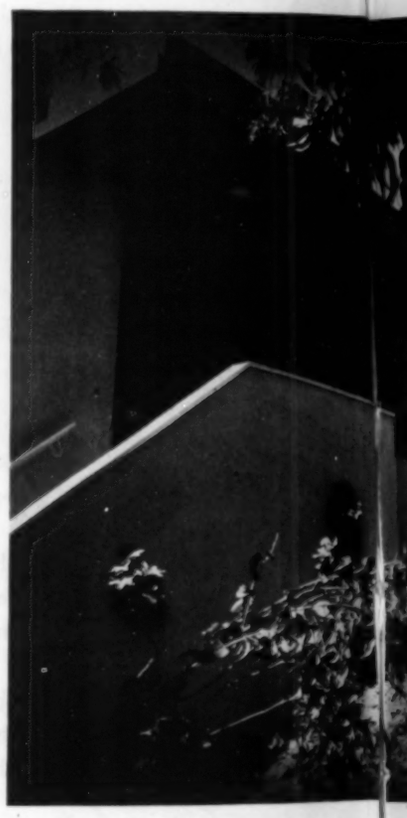
For one person	400 sq ft
For two persons	750 sq ft
For three persons	1000 sq ft
For four persons	1150 sq ft
For five persons	1400 sq ft
For six persons	1550 sq ft

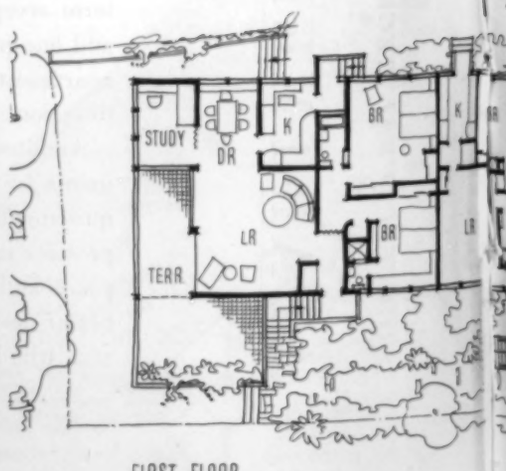
The reader can check all our figures for himself and make such additions or subtractions as he may see fit. If our totals are even approximately justified, it is clear that a large part of the housing built during the past five years is inadequate in its space provisions. Our figures closely approximate actual practice in the high-income groups. They are about 25 per cent above the space provided in the better of our public housing projects. They call for about double the space furnished in a great volume of recent speculative building; and about double the space indicated in certain "Economy Houses," publicized by federal housing agencies.



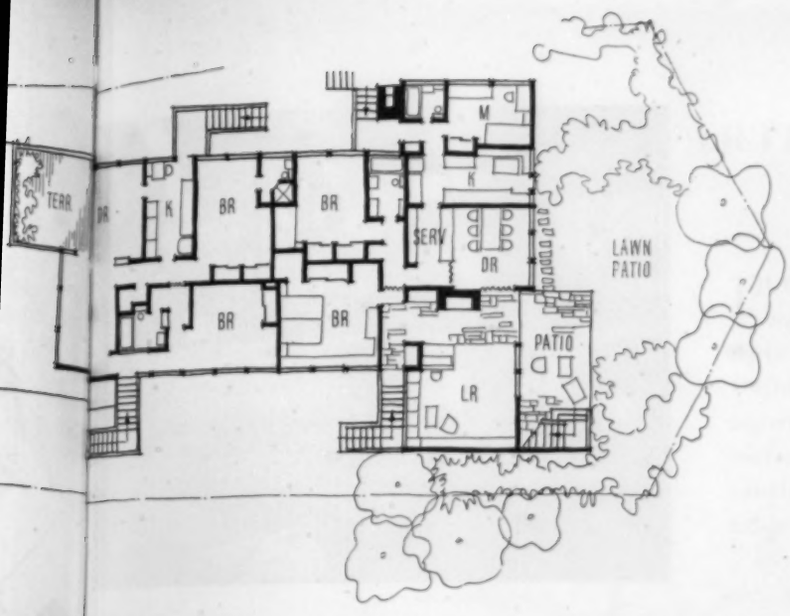
SECOND FLOOR

Julius Shulman Photos





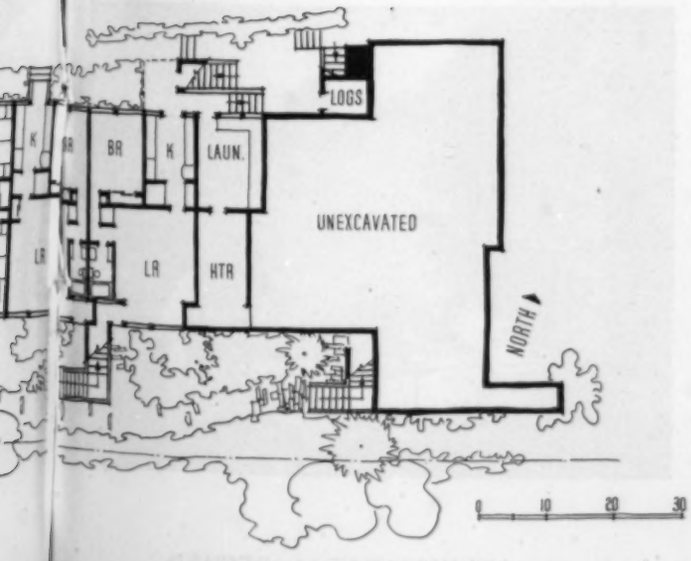
FIRST FLOOR



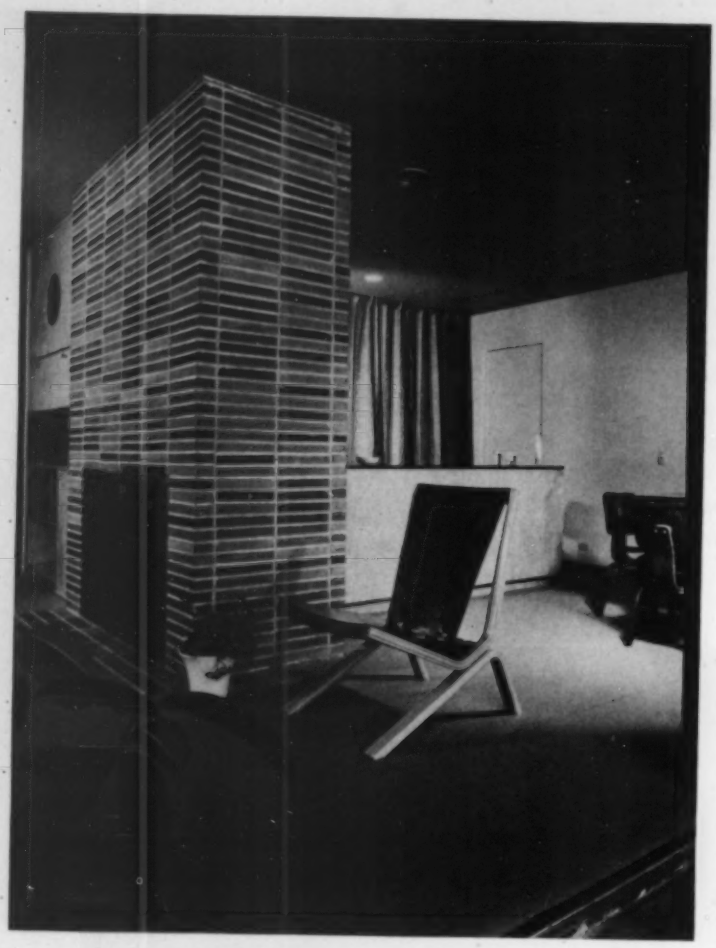
EL-KAY APARTMENTS

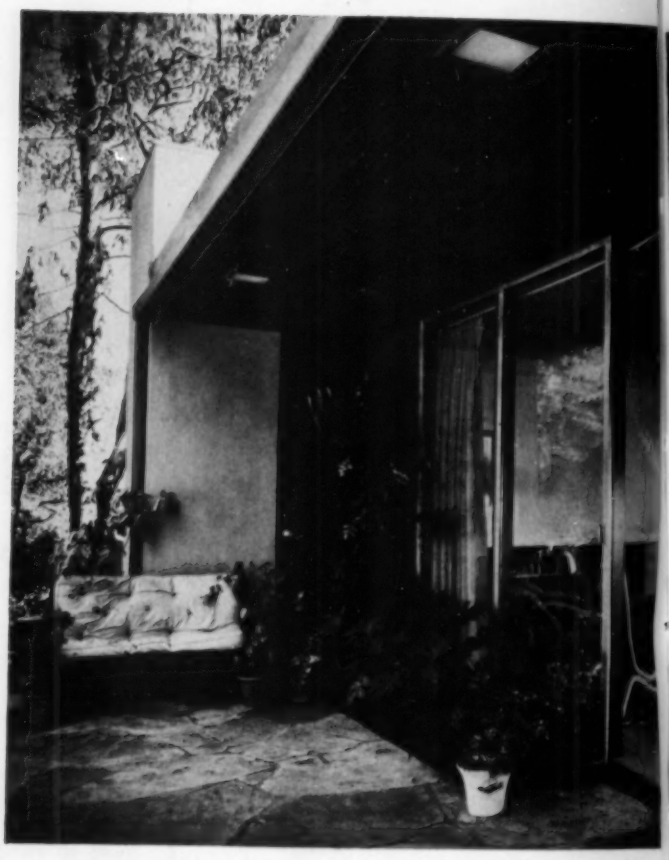
Westwood, Los Angeles

Richard J. Neutra, Architect

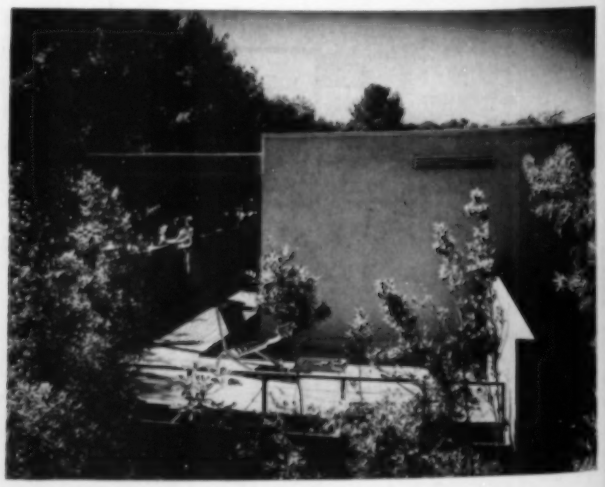


HERE is a deliberate attempt to give the rented building the qualities of the individual home. Firstly, said the program, the building must age inconspicuously (see Neutra's guest editorial, page 127) like the adjoining Kelton Apartments by the same architect. Secondly it should provide outdoor space, with foliage for both screening and view, and maximum size was to be allotted to living and social quarters, extending where possible into decks or patios. Stylistically the building was to please a diversified tenancy, without the earmarks of fashion and date. So here is an excellent example of a residential concept of apartment dwelling, nicely freed from the regimented aspect so generally associated with apartment house design.





In the owner's apartment the homelike character is especially evident. Fireplace separates living and dining space; living room opens through sliding glass doors, to patio



APARTMENTS BEYOND TOMORROW

Construction is a timber chassis with fire-resistant cement plaster. Large view windows of plate glass, steel sash, sliding doors, insulated roof. Many apartments have blond paneling of unselected birch; living areas are carpeted for the tenants

Julius Shulman Photos

Some apartments have outdoor living rooms in patios at ground level; others have elevated deck terraces as the hilly site was developed to utilize outdoor stairs as screens for little private gardens

PUTTING things about a city into orderly shape — and maintaining them so — can probably be studied in Copenhagen or Buenos Aires much better than, say, in Chicago, Los Angeles, Philadelphia, Detroit. Not only planning, designing and buildings, but *maintaining* a neighborhood on a planned and designed respectable level, is a matter of utmost significance for all holders of income property. Costly apartment construction requires above all this security of urban steadiness over a prolonged amortization period.

Income property in the Swedish, Brazilian, Argentinian cities, etc., has, during this last dozen years of world trouble, reached certain peaks of modernity and rational up-to-dateness, hardly yet matched by us, who, after the grand depression, were busy in a boom devoted to ammunition-making and shooting. Postwar development may possibly soon change the balance in our favor.

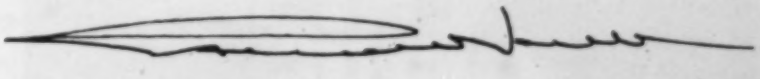
In these foreign cities there is a significant faith of the investors that to build rental property, and to build it of fine, lasting materials, according to a first rate design by a capable architect of vision, is in the long run of amortization the best investment.

The truly contemporary evolution of the rental apartment is recognized in South American, Italian, or Scandinavian cities, and in their economics and politics, as a natural and accepted fate for large portions of the metropolitan populations.

The shrinkage of the globe by vastly improved transportation and the moving about of civilized people — not only as tourists but for the temporary settlement in this or that city — of professionals, branch executives, university teachers, consultants, and a thousand others, all this calls for a natural correlate of transient and semi-permanent lodgings and apartments, in every thriving metropolis.

The influx of people from the outside, their proportionate percentage to the settled population, will accordingly rise way beyond our current imagining. And it is not simply a question of hotels in the more restricted sense of this word. The people of the future are no longer bound to spend all their lives after the fashion of their grandfathers, in the same village or on the same anchorage.

The next decade will witness a higher and a better-lasting type of dwelling, an apartment more refined in layout and appointments, more intelligently adjusted to present tastes and needs, and fitted into an intelligently improved zoning plan of our cities. Any temporary shortage, or sellers' market, is much briefer than the amortization period of a new structure. Whatever we now plan to build will have to stand up in a keen competition with what follows way beyond tomorrow.



Richard Neutra

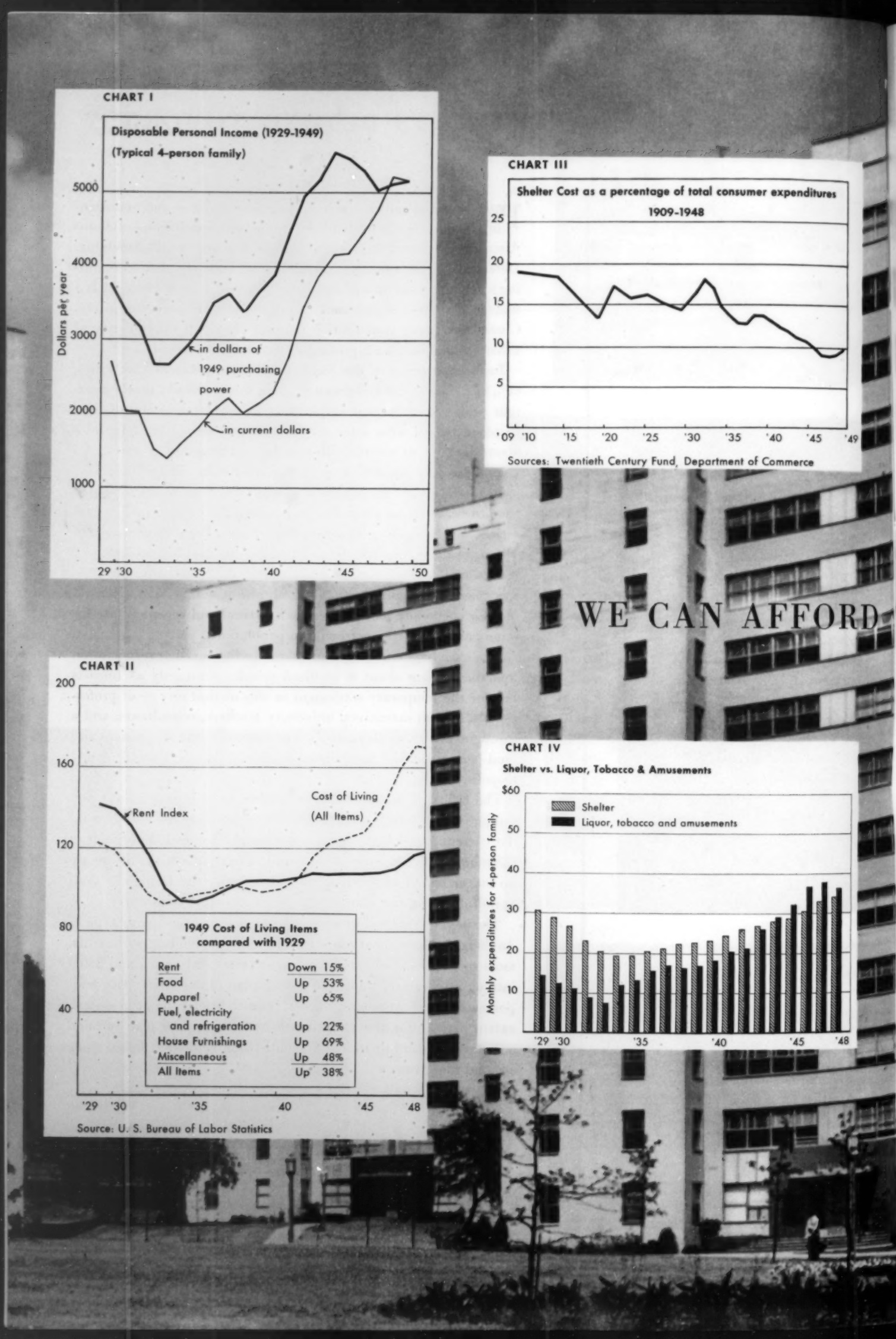


CHART I
Disposable Personal Income (1929-1949)
(Typical 4-person family)
Dollars per year
5000
4000
3000
2000
1000
in dollars of 1949 purchasing power
in current dollars
29 '30 '35 '40 '45 '50
CHART III
Shelter Cost as a percentage of total consumer expenditures
1909-1948
25
20
15
10
5
'09 '10 '15 '20 '25 '30 '35 '40 '45 '49
Sources: Twentieth Century Fund, Department of Commerce
WE CAN AFFORD
CHART II
200
160
120
80
40
Rent Index
Cost of Living (All Items)
1949 Cost of Living Items compared with 1929
Rent Down 15%
Food Up 53%
Apparel Up 65%
Fuel, electricity and refrigeration Up 22%
House Furnishings Up 69%
Miscellaneous Up 48%
All Items Up 38%
'29 '30 '35 40 '45 48
Source: U. S. Bureau of Labor Statistics
CHART IV
Shelter vs. Liquor, Tobacco & Amusements
$60
50
40
30
20
10
Monthly expenditures for 4-person family
Shelter
Liquor, tobacco and amusements
'29 '30 '35 '40 '45 '48

HUNDREDS of thousands, perhaps millions, of American families can afford better housing facilities than those they now occupy, if they choose to spend their money that way. Doubtless many of them will.

Postwar housing production has thus far emphasized new dwelling units in the lower cost brackets. Such emphasis has been entirely appropriate in a market dominated by the urgent needs of newly-wed veterans and their young families. However, in mid-March this year Ewan Clague, U. S. Commissioner of Labor Statistics, pointed out in a public statement that American families may be growing too fast and too large for the homes that are currently being built for them. For one thing, American families are producing more babies than they did fifteen and twenty years ago. Furthermore, babies have a way of growing up to be teen-agers with ever-increasing space demands. With continued prosperity many of today's young parents will enlarge their incomes as they and their children grow older.

These family trends should not only create demands for more rooms per dwelling unit but also for more generous dimensions per room.

BETTER HOUSING

By Thomas S. Holden, President

F. W. Dodge Corporation

For these and other reasons it is likely that the next great advance in the American standard of living will be in the direction of improved quality of housing accommodations. While such improvement has been real and continuous for at least a generation, it has not kept pace with the rapid rise that has taken place in other phases of American consumption.

Rising Personal Incomes

In the years 1948 and 1949 Americans had the largest aggregate of personal incomes in the history of the country. Over-all income accounts of those two years have been reported as follows by the Council of Economic Advisers to the President:

	1948	1949
Total personal income	$211,900,000,000	$211,700,000,000
Direct taxes	21,107,000,000	18,800,000,000
Disposable personal income (take-home pay)	$190,793,000,000	$192,900,000,000
Personal saving	12,005,000,000	14,400,000,000
Personal consumption expenditure	$178,788,000,000	$178,500,000,000

For figures as huge as these to be understood, they must somehow be reduced to the dimensions of everybody's personal experience in handling his own money. For this purpose, the figures plotted in chart I represent the trend of yearly income of a typical four-person family from 1929 through 1949. The thin line of the chart shows how the income of the typical four-person family dropped from $2512 in 1929 to $1440 in 1933, and rose, almost but not quite continuously from $1440 in 1933 to $5172 in 1949. (A four-person family is today slightly larger than the statistical average of all U. S. families.)

The Rise in Living Standards

Everybody knows that the purchasing power of the dollar changes from time to time and that real income must be measured in terms of what the dollars will buy. Therefore it is necessary to show in the chart a second trend line (the heavy one) for which each year's income figure has been calculated in terms of 1949 dollars; in other words, the income figures of the years 1929–1948 have been inflated up to the purchasing power level of the 1949 dollar.

The chart shows that in 1949 the typical four-person family could buy 38 per cent more goods and services than in 1929 (a year of high prosperity), 96 per cent more than in 1933, over 33 per cent more than in 1940. This is a remarkable prosperity record.

Rising real incomes obviously mean command of more goods and services. Furthermore, a rising standard of living means that the average family pays out progressively less for the basic necessities, food, clothing and shelter, and has larger and larger margins for the purchase of other goods and services; the average American family today possesses many things formerly regarded as luxuries available only to the rich. When we observe the vast numbers of wage earners who ride daily to work in their own automobiles, we realize that, in our economy at least, the luxuries of bygone years have come to be necessities today.

The record of consumer expenditures shows that American families have been spending their enlarged incomes for vast quantities of optional goods, as well as accumulating enormous funds of savings.

Shelter Expenditures

Analysis of consumer expenditures, with particular reference to expenditures for shelter, reveals some striking facts and several curious paradoxes. Such analysis is afforded by statistical compilations and estimates of the Twentieth Century Fund ("America's Needs and Resources," published in 1947), of the Department of Commerce and other government agencies.

This analysis reveals the following facts:

1. Shelter cost today is the one and only major element in the cost of living indices that is actually lower than in previous eras of prosperity; it is very considerably lower.

2. Shelter cost has been declining, practically steadily, during the past forty years, measured as a per-

centage of total consumer expenditures.

3. Reduced shelter cost has contributed in a large way to the capacity of average American families to acquire many other goods and services that have greatly enhanced their material living standards.

4. In spite of the facts here stated, there has been a definite rise in the shelter standards of the average American family.

The first of the above statements is borne out by the trends since 1929 of the consumers' price index. This index is compiled by the U. S. Bureau of Labor Statistics; it represents prices paid by moderate income families in large cities. A curve showing the year-by-year trend of rents is compared with the composite curve representing all items that made up the cost of living. After the depression of the 1930's the cost of living as a whole rose much faster than rent.

In 1949, shelter rent was generally 15 per cent lower than in 1929, while all the other items were considerably higher than they were in 1929.

The declining role of shelter cost in total family budgets is shown in Chart III; this shows for each year since 1909 the percentage of total consumption expenditures that is represented by shelter cost. Shelter cost includes the totals of all rents paid by tenant families plus the total of all those expenditures of home-owning families which are equivalent to rent (mortgage interest, maintenance and repairs, real estate taxes, etc., etc.). These figures represent current month-by-month shelter expenditures, not capital investment in new housing.

As shown in Chart III, shelter cost represented 19 per cent of total consumer expenditures in 1909, 9½ per cent in 1949. The downward trend of shelter cost, as a percentage of total, was thus in evidence long before wartime rent control was instituted.

It has been nearly, if not quite, continuous. Apparent jumps in 1921 and 1932 did not represent actual increases in total shelter expenditures; they really represent the sudden drops in total consumption expenditures which took place in those depression years when incomes and commodity prices fell much more rapidly than rents declined. It always takes rents longer than other prices to get adjusted in a period of changing price levels.

It is obvious that as the nation's total annual shelter cost declined relative to income, rent savings enabled consumers to spend larger and larger proportions of their total incomes for other goods and services. It is possible to construct some estimates of the actual contributions of rent-saving to increased spending for other things.

For this purpose the year 1929, a year of high prosperity, is, arbitrarily perhaps, selected as a base year. Since that time rents for average families have declined, the number of families has increased considerably. In 1929, shelter cost represented one-seventh of total consumption expenditures. Applying these facts to the expenditure figures of 1948 and 1949, we get the following:

	1948	1949
Theoretical shelter cost (at 1929 standard of shelter expenditure, 1/7 of total)	$25,541,000,000	$25,500,000,000
Estimated actual shelter cost	15,900,000,000	17,000,000,000
Saved, available for other goods and services	$9,641,000,000	$8,500,000,000

These figures may be considered as theoretical measures of the extent to which higher living standards have been realized by holding shelter expenditures down. Just what other things the American people have been buying with their increased incomes and their rent savings will appear further along in our story.

With regard to the fourth statement above, it can be shown statistically that, in spite of progressive reduction of rent as a percentage of total consumption budgets, there has been a general improvement in shelter standards. Here are the figures:

	1948	1949
Shelter expenditures (actual)	$15,900,000,000	$17,000,000,000
Expenditures required for shelter of 1929 standard	11,421,000,000	12,426,000,000
Theoretical improvement	$4,479,000,000	$4,574,000,000

American families in 1948 and 1949 spent more for basic shelter — spent from 35 to 40 per cent more — than they needed to spend for enjoyment of 1929 standard shelter, even though they spent much less for basic shelter cost in proportion to their incomes than they were obliged to spend in 1929. A majority could have afforded even larger shelter expenditures, if such had been their choice. It will be interesting to examine the record of what they actually spent their money for.

What Have American Families Been Buying?

The latest year for which consumption expenditures have thus far been estimated in great detail is 1948. Since total consumption expenditures of 1949 were almost the same as in 1948 and since the detailed pattern of expenditures was not widely different in the two years, the following summary is of timely interest.

It is to be noted that food expenditures, by far the biggest item in the vast majority of family budgets, is shown below under two separate headings. The reason for this is that our economy has not only been feeding more people at higher prices than in 1929, but has also been feeding them much better. By far the biggest change in the spending pattern between 1929 and 1948 was the big increase for diet improvement.

These astronomical figures present a statistical picture of the highest level of consumption ever attained by any nation. It is of particular interest to note how many items in 1948 exceeded the total cost of basic shelter. Notice, for example, that we spent more on alcoholic beverages, tobacco and amusements than on basic shelter.

1948 Consumption Expenditures (National Totals)

Basic necessities:		
Food (at 1929 diet level)	$37,577,000,000	
Clothing and shoes	19,977,000,000	
Shelter	15,902,000,000	
		$73,456,000,000
Eating, drinking and enjoying life:		
Food (improvement over 1929 diet standard)	$15,358,000,000	
Alcoholic Beverages	8,150,000,000	
Tobacco	4,147,000,000	
Amusements	3,946,000,000	
		$31,601,000,000
Comforts and conveniences (durable goods):		
Household furnishings and appliances	$9,881,000,000	
Transportation (cars, parts, etc.)	8,171,000,000	
Recreation (boats, books, radios, sport goods)	3,228,000,000	
Personal effects	2,239,000,000	
		$23,519,000,000
Other non-durable goods and services:		
Care of clothing and person	$4,828,000,000	
Household operation	14,519,000,000	
Medical care and death expense	7,818,000,000	
Personal business (insurance, etc.)	7,042,000,000	
Transportation services	9,220,000,000	
Recreation	2,894,000,000	
Private education, religion, etc.	3,891,000,000	
		$50,212,000,000
TOTAL		$178,788,000,000

From the composite picture of rising living standards that has been given in the table, we may conclude that:

1. Improvement in the quality of basic shelter has generally lagged behind improvements in other phases of consumption.

2. With further rises in real consumer income, demand for better quality houses and apartment suites is likely to increase tremendously.

3. The opportunity exists for architects, builders and publishers of home magazines to do a major selling job to educate the public on quality housing.

4. Manufacturers should recognize the sales potential that exists in the quality housing market and direct their consumer promotional efforts accordingly.

They Want More Spacious Living

Tangible evidence of increasing demand for housing above minimum economy standards is seen in the rising volume of single-family houses built on owners' order for owners' occupancy. In the 37 eastern states these increased from 50,305 in 1946 to 87,413 in the year 1949. In the first four months of 1950 they numbered 34,999, compared with 20,404 in the first four months of 1949. This year's custom-built houses averaged 1530 square feet of floor space (exclusive of cellars and attics) compared with the 1111 square-foot average for the houses started by operative builders.

It is thus seen that the market for custom-built houses and the quality products that go into them is already definitely on the upswing. It seems likely to continue well beyond the time when the market for economy houses reaches saturation.

City apartments, to compete with the attractions of spacious suburban living, will be obliged to adopt more generous floor plans, more convenient space arrangements, more outside open space.

General upgrading of quality will involve dwelling-unit costs higher than the costs of economy houses. However, the quality dwelling units will have to represent sound values for whatever price tags they carry.

Current price levels have been accepted by the home-buying public as reasonable postwar value for postwar dollars ever since mid-1949. At any rate, more people have been buying new houses and ordering custom-built houses since that time than in any similar period in the past. Unless construction costs rise substantially above current levels, cost should not prove a deterrent to expansion of the quality housing market.

Savings and mortgage credit are in ample supply. The Securities and Exchange Commission reported that, as of December 31, 1949, individuals in this country held total savings amounting to $307,000,000,000, of which $211,000,000,000 consisted of cash, bank deposits, government securities and equities in savings and loan societies. That should be ample for down payments on quite a number of quality houses.

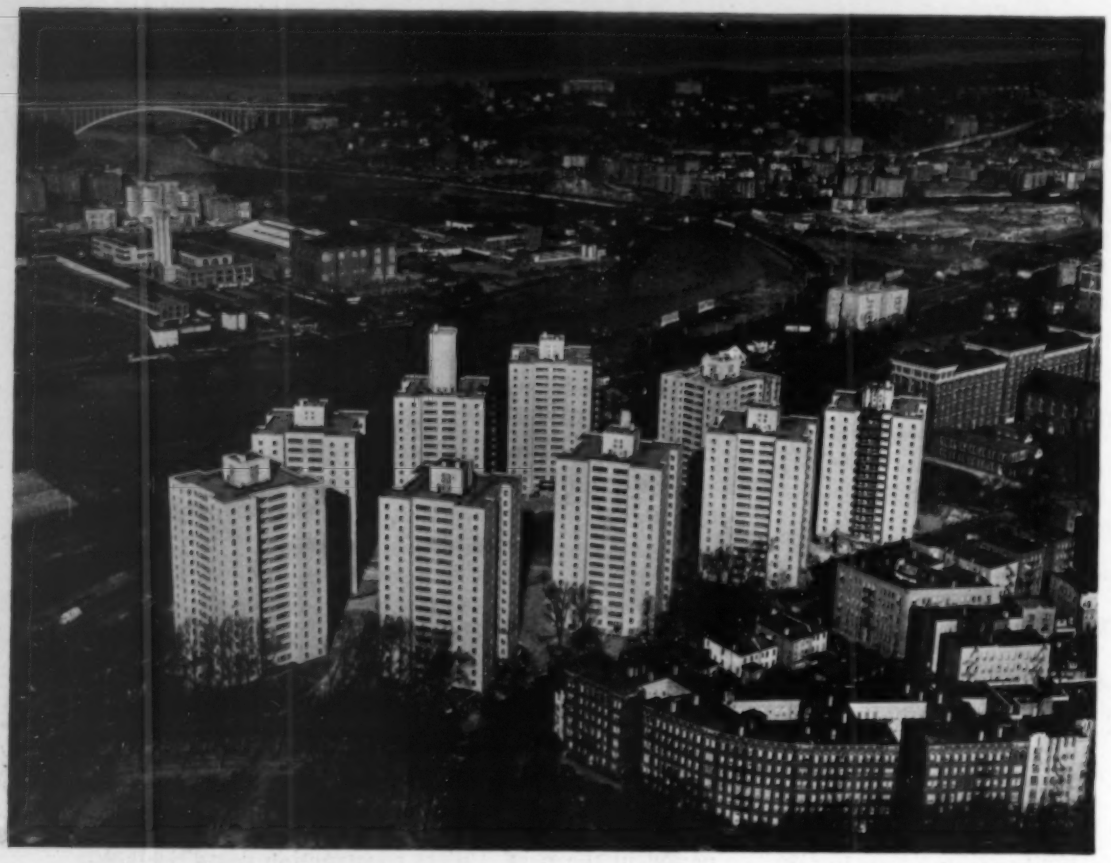
Educate the Public on Housing Quality

Here is a marvelous opportunity for architects. They will not only be called upon to create new and original designs for the houses and the apartments of the future. They will also have a chance to educate their clients and the public as to the paramount importance of space and space arrangement in architectural design; they have the opportunity to define, in the language of today, just what constitutes a quality house or a quality apartment suite. A public which has been predominantly style conscious is becoming space conscious.

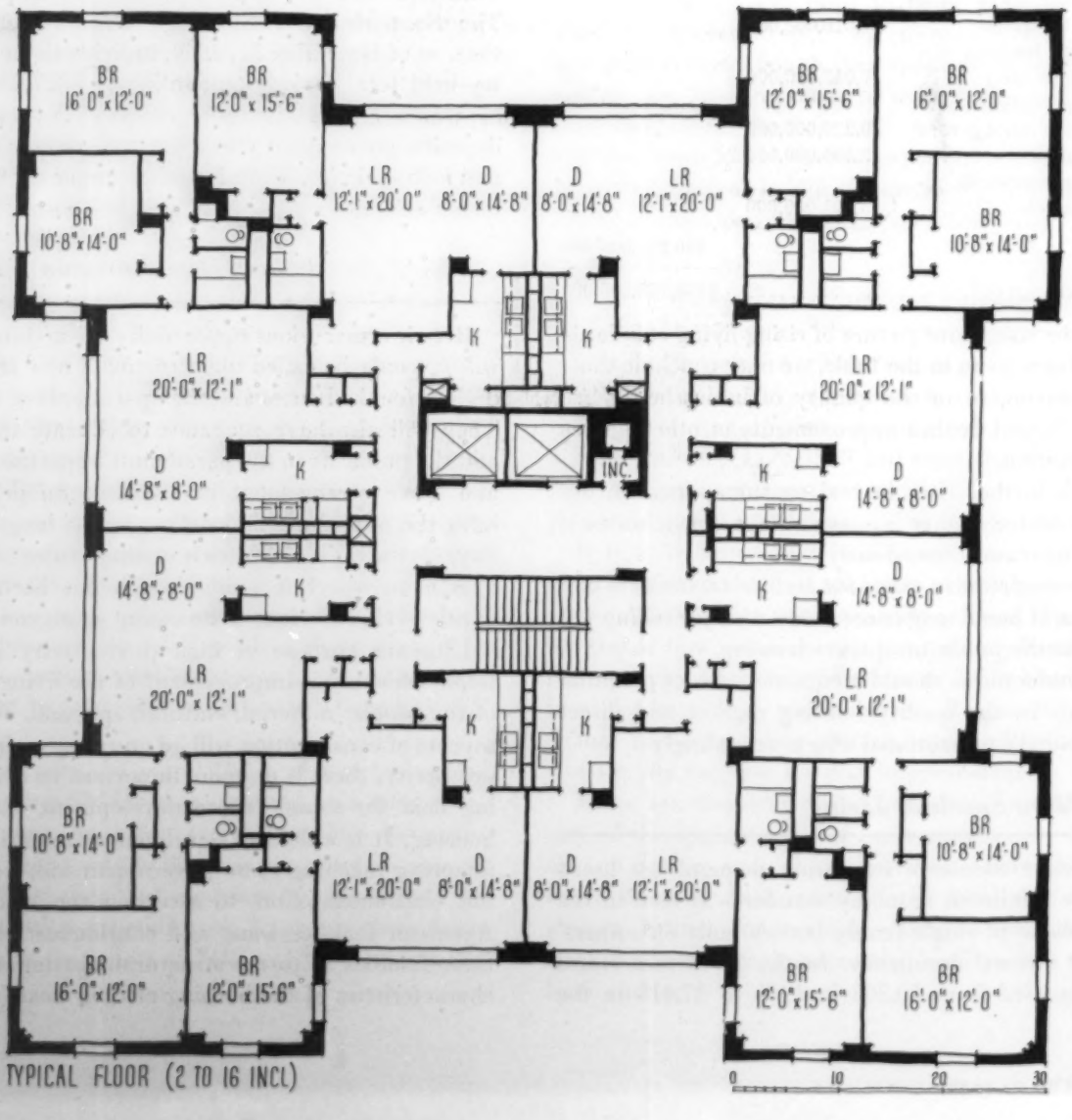
Ultimate purpose of high productivity in the national economy is improvement of the living standards of the people: material, cultural, spiritual. While other aspects of consumption will go on rising with continued prosperity, there is no more important or more promising field for sound future development than quality housing. It is a field of development requiring no new financing machinery, no government aid, no anything but continuous effort to ascertain the kind of living American families want and continuous education of these families as to the structural, spatial and esthetic characteristics of the housing of their heart's desire.

FORDHAM HI

Bronx, N. Y.



Thomas Airviews Photo

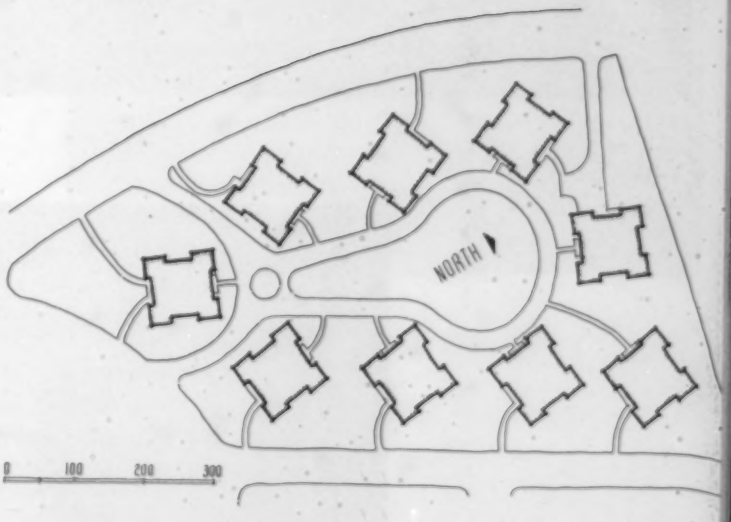


TYPICAL FLOOR (2 TO 16 INCL)

HILL APARTMENTS

Leonard Schultze and Associates, Architects

Joseph Molitor Photos



ALL TOO rare, in recent years of federalized apartment planning, are projects conceived like Fordham Hill. This huge apartment development was chosen for presentation here as a current example of long-term investment of life insurance funds, planned without much concern over current excitements, either economic or stylistic, but representing the collective opinion of an imposing aggregation of planners all looking toward the future. The owners (Equitable Life Assurance Society), the architects (Leonard Schultze & Associates), the consultants (City Investing Company) and the builders (Starrett Bros. and Eken) all got into discussions of such questions as tall vs. low buildings, inside or outside kitchens, trying to chart the course of apartment living in the years ahead.

There will undoubtedly be lifted eyebrows over the concept of nine 16-story buildings housing 1118 families on a single site. Advocate of the height was Robert W. Dowling (City Investing) who can't abide the idea of spending one's hard-earned leisure in commuting to the country.

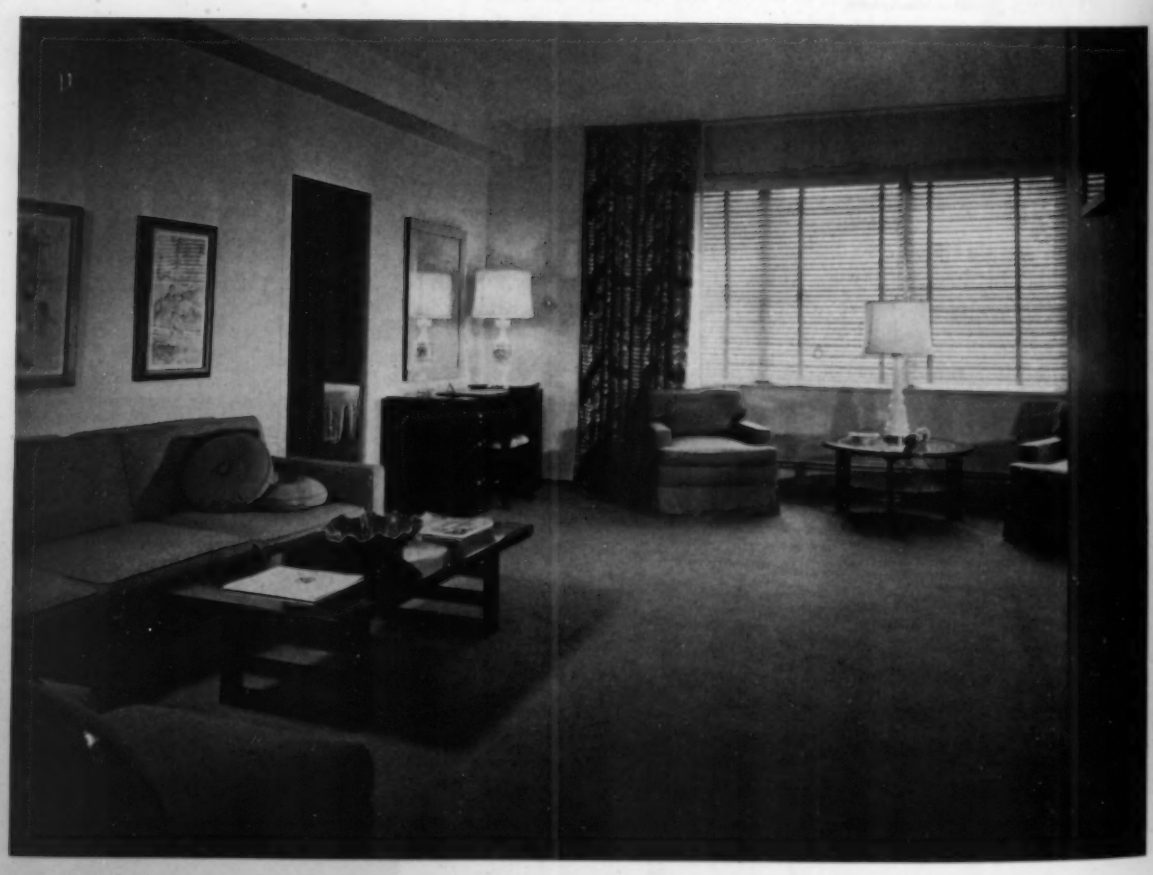
The fact is that Fordham Hill splits the difference; it is in the Bronx, a short commuting ride by subway or train from the city. It is out of the canyons of Manhattan, where views from the upper stories include the rivers, the Sound, the Palisades. There is another reason for the height — distant views dispel the ground-level sense of congestion.

Cost is a cogent argument for height. Land cost, to be sure, in the large city. But more significantly, the long-term cost of maintenance. Metropolitan Life is said, for example, to find operating costs 25 per cent higher in low buildings than in high. That is why Parkmerced, at San Francisco, is being finished with high buildings after being started with low ones.

Another major decision at Fordham Hill was to use the interior kitchen. Starting with the fact that frozen foods and such have freed the housewife from long hours in the kitchen, Fordham Hill uses the inside kitchen, mechanically ventilated, to open a wide combination of living and dining space to views through extensive windows. The ventilation flow, it is pointed out also, is in the right direction; kitchen fans pull outside air into the apartment, into the kitchen, and up the stack. With an outside kitchen, any ventilation is likely to pull kitchen odors into the apartment.

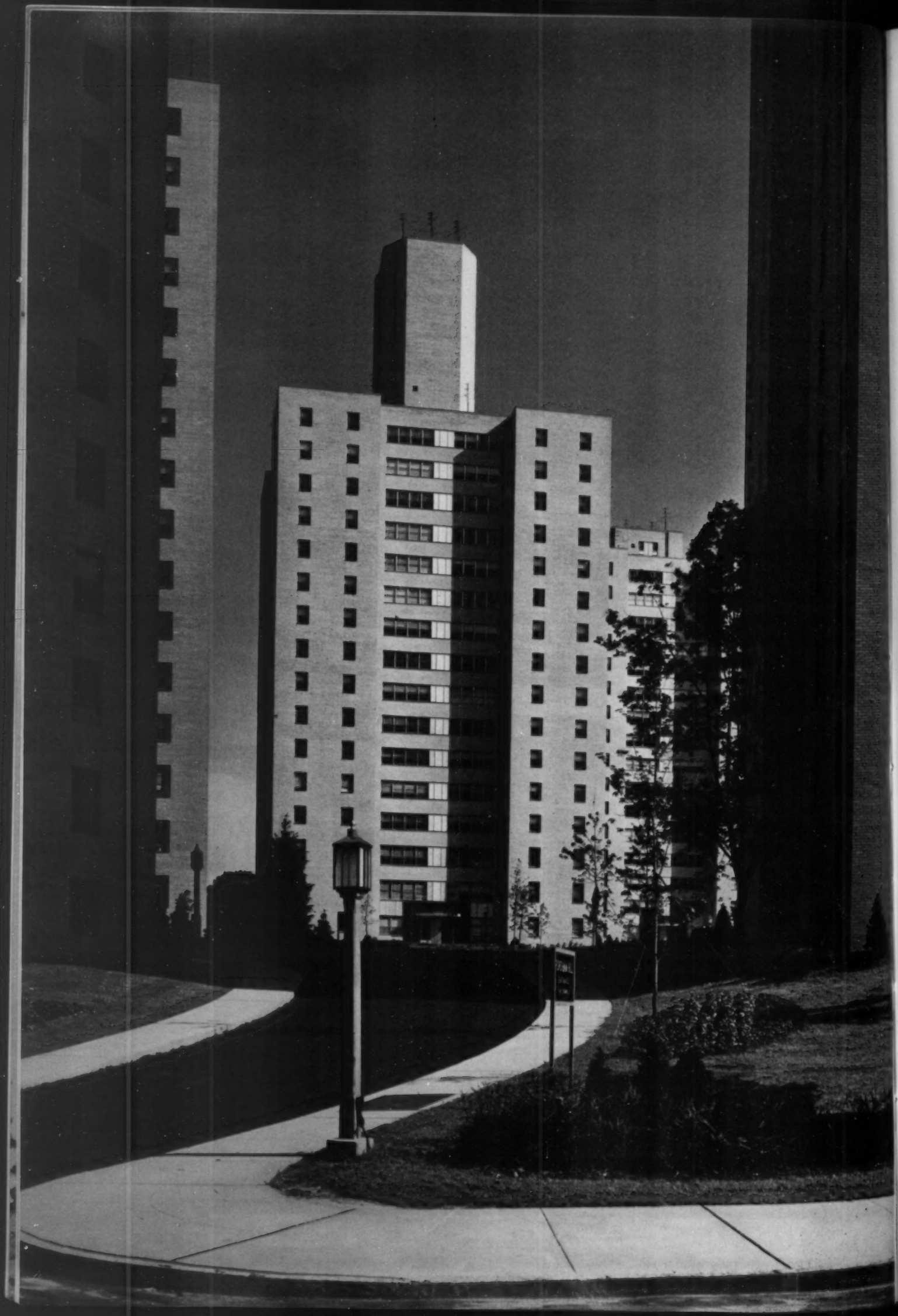
Beyond that Fordham Hill's rooms are of generous proportion — quite large for mass housing. This is one of its best assurances of continued popularity through the years.

Fordham Hill represents the high-building concept of apartment planning — save cost and commuting time for tenants, make the development large enough to establish its own neighborhood, bring the gardens and playgrounds to the city dweller, don't send the people out to the gardens. Large rooms and wide windows, high in air, open apartments to distant views



Joseph Molitor Photos

The interior kitchen has its share in the opening of apartments to views; it permits a wide combination of living and dining space, with a long strip of windows. The rooms are of generous size in the first place, and with the linear arrangement of added dining space along the outer wall, the living area becomes something really spacious. Buildings are oriented on the site so that one does not block views from another; fortunately there are good scenic possibilities in several different directions



WORKING WITH WASHINGTON ON HOUSING

Joseph Molitor Photo

By Miles L. Colean

Housing Consultant

DURING 1949 about 70 per cent of the multifamily building in the United States resulted either from government insured financing through the Federal Housing Administration or through direct government public housing operations, mainly under state authorizations. In 1950 and 1951 the proportion of housing built under government stimulus will be as great, although in the latter year there may be some shift in the balance between public and private work, as the FHA sponsored boom in efficiency apartments slackens off and the revival of federal public housing activity gets under way.

The architect who wishes to be a sought-after apartment designer must, consequently, become a specialist in interpreting the government formulas. This skill is equally as important as that required to wend his way through the local building code with the minimum of casualty to his design. It is probably even more important, for not only the design but the very possibility of the job coming to life at all may depend upon a thorough knowledge of the technical requirements, financial limitations, and operating procedures of the federal agencies involved — and, by no means to be neglected, the personalities in those agencies.

The character of the federal housing activity is at once so manifold and so intricate that it will not be possible to supply here *An Architect's Guide to Operations and Public Relations with Government Agencies*, although a compendium of that title might have considerable usefulness — if, as seems doubtful, it could be kept up-to-date. Nor is it likely that any one architectural firm will find it feasible to become expert in all the federal programs. What will be attempted here is a description of the federal operation with particular reference to the current possibilities, together with some suggestions to aid the architect in achieving expertness in the operations of the agencies he may choose to work with, and in keeping up-to-date with the variations and unpredictable changes in formula and policy.

What Program to Pick?

What does the architect who is interested in rental housing do first? He does not — unless he dwells in a dream world — sit and expect a job to light full blown upon his drafting board. Instead he makes up his mind as to what type of activity he wishes to devote himself, and he then proceeds to learn more about it than the possible client. He will recognize early that, whether this ultimate client is to be a private individual or a public body, he will have to live with government all the way.

The federal agencies with which he will deal are grouped under the general direction of the *Housing and Home Finance Agency*. The extent of the control of the super agency over the sub-agencies may as well remain a mystery to the architect. So far as his particular jobs are concerned, it is safe to say that the HHFA will intervene neither to help nor to hurt. To him it is nonexistent. His concern is with what are referred to as the "constituent agencies," of which, for rental housing, there are two.

If the architect is interested in public rental housing, he needs to know about the workings of the *Public Housing Administration* (PHA) and the extent to which his ingenuity may be cramped by its standards and preconceptions. If he proposes to concern himself with what is still spoken of as private rental housing, he will have to adapt himself to the requirements of the *Federal Housing Administration* (FHA), which are numerous, complicated, and baffling.

The Public Housing Agency has but one general procedure, as described below; but in this year's FHA rental housing package, there are a number of programs from which to choose. First, there is what may be called ordinary rental housing — that is, a project consisting of dwelling units to rent, as apartments always have been rented, and financed by an insured mortgage loan made by a private lending institution. This type is commonly referred to as *Section 207 housing*, after the part of Title II of the National Housing Act which authorizes this activity.

Second, there is *Section 213 housing*, which is housing for cooperative associations and other non-profit organizations, financed in the same manner as *Section 207 housing*.

Then we have "*yield insurance*" *housing*, authorized under Title VII of the National Housing Act, which differs from *Section 207 housing* mainly in that, instead of insuring a mortgage loan, the FHA in this case insures a minimum yield on the owner's 100 per cent equity investment.

Finally, there is *military housing*, which is similar to

Section 207 housing with special variations permitting it to be erected on government-owned land on military posts and rented to military personnel. This type is authorized under Title VIII of the National Housing Act, and it involves dealing with one or another of the units of the Department of Defense as well as with FHA.

There are thus five main types of activity to choose from, distinguished by method of financing and operating agency.

How the Architect Functions on Public Housing

Although new public housing is likely to run no more than 5 per cent of total new dwelling units started this year, this low figure fully reveals neither the future importance of this work nor the volume of architectural jobs now being given out. In this article, state public housing programs will not be discussed. Here, public housing means solely construction done under the system of federal loans and subsidies provided in the Housing Act of 1949. Under this system, the federal government, through the Public Housing Administration, hopes to stimulate the building of 810,000 units over a 6-year period.

Besides providing financing for the operation, PHA also sets standards for the design and construction of projects, determines schedules of architectural fees, and reserves the right of approval of selected architects and of all plans and specifications. Maximum cost limits are established in the law. These are $1750 per room with an additional allowance of $750 a room where the PHA Commissioner finds local cost conditions to warrant an increase. Since the cost limit applies only to the construction of buildings and does not include cost of land, land improvement, and utilities, it will be readily noted that the limitation is more generous than that allowed for FHA work. A glance at the PHA publication, *Minimum Physical Standards and Criteria* (Dec. 13, 1949),[1] reveals also that the planning minima for public housing are markedly above the FHA minima.

Thus given a generous cost limit and, in effect, compelled to provide housing of a higher quality than the cold economics of an FHA deal will often permit, the architect may find more scope for his talent in public housing work than in the more restrictive private work. He should, however, recognize that public housing is a special sort of thing, with mysteries unknown to the uninitiated. Part of these can be learned from a careful reading of PHA standards and bulletins. Probably a more important part of the architect's orientation, however, will come from acquaintanceship with local housing authority officials and from participating in the activities of local housing and planning committees, councils, associations, and so forth. The architect should also be familiar with early public housing work, but since this is now being widely criticized, even in inner circles, as too "institutional," he is forewarned not to pick his models blindly.

The client in all cases is the *local housing authority*, an instrumentality usually either of a municipal or a county government. The authority develops the program, determines the characteristics of the project, determines the fee (according to the PHA schedule), signs the architect's contract. Although practically everything that the authority does must be approved by the PHA field office, and although the authority may authorize the architect to deal directly with the PHA on its behalf, it is essential to recognize that the architect's responsibility is solely to the authority. He cannot take an appeal from the authority to the PHA on a matter of planning any more than he would attempt to persuade a government agency to influence or coerce any other kind of client.

PHA gives the appearance of being more receptive to new ideas than is the case with FHA. Moreover, its standards appear to be both broad and flexible enough to give the architect considerable leeway in exercising imagination and ingenuity. Nevertheless, the new idea, even though it conforms to local ordinances, may run into difficulty. In the first place, local authorities tend to be conservative. If the innovation is acceptable there, it may still be rejected by the PHA field office as invoking an unwarrantable risk of public money (if for no other reason). If sufficiently concerned, the local authority can take an appeal from the PHA field office to the PHA in Washington, where it is likely to be confronted with a courteous skepticism. Proof of performance (usually more than provided by laboratory data or engineering opinion) will be required. In any such case, therefore, the architect must be prepared to support his own convictions with convincing evidence.

One more point on getting a public housing job. Generally speaking, local architects will be favored. Nevertheless, a "foreign" architect with know-how and a talent for salesmanship may have an advantage over the local man, particularly in the smaller places — and a very large number of the new projects are located in towns of 25,000 or less. One alert architect in the Middle West is reported to have garnered about 30 projects.

Some Advice on Dealing with FHA

FHA operates on a decentralized basis. Great powers have been delegated to officials of state and district offices; and appeals from their decisions are apparently designed to be tedious and frustrating. Actually no regularized appeals system exists. A local office may, if it chooses, refer a disputed question to Washington. But it doesn't have to, and the applicant can't force it. Moreover, even on referral, the Washington office

[1] *This document is an essential part of the equipment of the architect interested in this class of work. Available also on request from the Public Housing Administration, Longfellow Building, Washington, D. C., are a series of advisory Bulletins (LR 3 to LR 10 inclusive, including all parts thereof) on site planning and engineering, structural design, materials, methods, architectural planning and design, and other subjects of vital interest to participating architects.*

will simply recommend; it will not, except in flagrant cases of capriciousness, coerce the local office.

The wise architect will know both the officials with whom he must deal and the requirements he must meet. The state or district director is the nominal head of the office, and, in many instances, he is the real head. In other offices, the chief underwriter, who is in direct charge of the processing of cases, is practically independent in his decisions. These delicate situations the architect must comprehend at the outset if he is to win friends and influence people. Other officials with whose powers and personalities he should be familiar are the chief valuator and the chief architect. Any one of this quartet may be in a position to block or advance the proposal; and upon their interpretations of the requirements hang all the law and the prophets.

The basic limitations affecting project development are given in the regulations summarized below. Equally important are the standards and requirements for land layout, design, and structure. Many of these will vary to meet conditions and prejudices in each locality and may be best learned through consultations with the local officials. Moreover, since changes in requirements are frequently and sometimes suddenly made, it is well to review the whole situation at the outset of each project and, if the early stages of planning are protracted, to re-review them from time to time as work progresses. FHA officials are usually extremely courteous and are willing to hold preliminary, informal discussions in order to make clear their views and requirements.

At the same time, it must be recognized that with most — though by no means all — FHA offices, the way of the innovator is hard. The safest course is to conform to the pattern of projects already approved. FHA takes the position that, as insurer of the mortgage, it has no right to risk government funds on untried methods or arrangements, and that the experiment should be made elsewhere. This may be a plausible argument, but, considering the virtual monopoly FHA has on the financing of rental property, the result may be a serious deterrent to technological progress.

The innovator must expect to present a complete documentation of his case, including reports of special tests or evidences of successful use and market acceptance. He must expect delay, demands for additional evidence, etc. He should avoid, if he can, a referral to Washington. This action is as apt as not to be the coup-de-grace of a new idea. The Washington office may prove to be more intransigent than the local; and the tendency in any case will be to uphold the local decision except where it is plainly at variance with a previous top-office ruling. Unless the architect is confident the latter is the case, or unless the matter is of such vital importance to the job that it warrants costly negotiations, he had better make the best compromise he can with the local office.

In spite of the odds to the contrary, innovations do win approval. Where this has happened it has usually been a combination of a good idea, supported by tests, experience, or authoritative opinion, and accompanied by the patience to persevere until either the opposition is exhausted or a sympathetic official has been found who will help the proposal along its thorny path.

Getting Back to Section 207 Housing

This activity is, in a sense, a revival of FHA's prewar rental housing operation. Many architects will be familiar with *Section 608 housing* — the kind of rental housing to which FHA was devoted during and after the late war. Because the financing appeared to give the builder-borrower too lush a deal and because the formula in its final manifestation led to what many fear to be a surplus of efficiency apartments, FHA wearied of 608 and participated willingly in its demise in the spring of 1950. Although much of 1950's rental housing will be of the 608 type because of the large volume of outstanding commitments, no new applications can be considered. We are back to Section 207 — but with major differences from its prewar aspects.

This new Section 207 (enacted in April, 1950) states its objective very plainly: "The insurance of mortgages under this section is intended to facilitate particularly the production of rental accommodations, at reasonable rents, of design and size suitable for family living." And again, the FHA Commissioner is specifically instructed to "direct the benefits of mortgage insurance hereunder primarily to those projects which make adequate provision for families with children, and in which every effort is made to achieve moderate rental charges." In other words, don't come in with a proposal for anything remotely resembling an apartment hotel or efficiency apartment building.

The Section 207 client may be: (1) a public authority, or a limited dividend, redevelopment, or housing corporation regulated by federal or state law, or by the regulations of state banking and insurance departments, as to rents, dividends, etc.; or (2) a special type of private corporation the operations of which are regulated by FHA according to a contract entered into at the time the project is financed.

Although the first type of client may obtain a maximum mortgage of $50 million as against $5 million for the second type, there have been few FHA projects owned by public or quasi-public instrumentalities. The pursuit of this type of operation is not likely to prove fruitful. The second class of client is usual, for although the procedure involved is still complex it is apt to be simpler than that in the first case. Even the $5 million limit is no disadvantage, since FHA will obligingly allow a more costly project to be financed with one or more mortgages, the amount of any one of which does not exceed $5 million.

There is some easing of terms under the new arrangement. Under Section 608, loans were customarily written for 32 years and 7 months at 4 per cent interest, resulting in a monthly payment of about $4.58 per thousand. Now the maximum term is set at 40 years which, at the same interest rate, reduces the monthly payment to $4.03 per thousand. The mortgage insurance pre-

mium, at ½ per cent per year, is, of course, in addition.

From this point on, however, the architect who has been familiar with a 608 operation will at once recognize that he is up against a far more difficult task in designing structures that will yield the builder the amount of profit to which he has become accustomed. Here is the tough part of the new formula (and it is a good deal tougher than the 90 per cent of cost, $8100 per unit formula of Section 608):

1. No insured mortgage loan may exceed the Commissioner's estimate of the cost of the completed physical improvements.

2. Nor may the loan exceed 90 per cent of the first $7000 of value per dwelling unit (land and improvements) and 60 per cent of the amount of value between $7000 and $10,000. No allowance apparently can be made for value over this amount.

3. Finally, no insured loan may exceed $7200 per dwelling unit for a unit of less than 4½ rooms and $8100 for a dwelling unit of 4½ or more rooms, for the part of the project attributable to dwelling use.

An examination of this formula indicates that a maximum valuation of $10,000 for a 4½ room or larger unit would permit a maximum mortgage of 81 per cent of value. The maximum valuation to which the formula would apply to a less than 4½ room unit would result in a maximum mortgage of a little less than 85 per cent of value. In spite of the policy declaration quoted above, the formula still favors the small unit, and a project heavily loaded with one-bedroom units would, on the face of it, appear to get a much better break than a project composed mainly of larger units. The simplicity of this analysis is marred, however, by supplementary rules issued from time to time by the national and local offices, restricting the size, type, and rental level of projects that will be accepted for examination. This contingency is one of the very important reasons for knowing local FHA officials and keeping in touch with them at all stages of the transaction. Important also is a knowledge of the more detailed features of the formula such as assumed vacancy ratio, dividend limits, required reserves, "prevailing wage" payments on construction, etc. — all of which should be thoroughly discussed before embarking on any job on a contingent basis.

Much will depend on the way in which the FHA offices will appraise costs under the new formula, particularly for small units, and on the proportion of small units that they will permit in a project. In any case, it is doubtful that the new arrangements will often result in mortgage loans large enough to cover the whole outlay. Usually the builder will have to leave, as equity in the deal, the investment in land and probably all or a good part of the architect's and builder's estimated fees, or their equivalent in cash.

The method of organizing and initiating a Section 207 project remains as of old. A builder and architect get together, obtain a piece of land (often on option), get the site and the general details tentatively approved by the local FHA office, prepare plans, find a lender, make application for loan insurance, follow through the tedious processing routine, argue over the proffered loan amount, and, if everything goes well, close the transaction and start to build. The arrangements between the architect and the builder are their own concern and do not necessarily conform to the amount of architectural fees (5 per cent of building cost including allowable builder's fee of 5 per cent) stipulated in the application form. The architect is entirely free to accept a fee in cash or stock, to have any type of participation in the deal that he may desire or be able to wangle from his associates, or to be the principal himself and hire a builder.

Section 213 Cooperative Housing

This is the new cooperative housing feature provided in the 1950 legislation. The basic patterns resemble those of Section 207 except as to the characteristics of the owning corporation. For multifamily structures financed under this section[2], the owner must be "a non-profit cooperative ownership housing corporation, or non-profit cooperative housing trust, the permanent occupancy of the dwellings of which is restricted to members of such corporation or beneficiaries of such trust."

The insured mortgage loan in this case may not exceed $5 million, or $8100 per dwelling unit or $1800 per room (as the Commissioner may think better) for the part of the project attributable to dwelling use, and also must not exceed 90 per cent of the Commissioner's estimate of *replacement cost*. If at least 65 per cent of the cooperative's members are veterans, then the limits can be raised to $8550 per dwelling unit, $1900 per room, and 95 per cent of replacement cost. Where the veteran ratio is below 65 per cent, an adjustment is made between the two sets of limits to give to veterans' groups the benefit of the more generous terms.

The standards of design and construction are the same as for Section 207 work, and the processing procedures are the same. The problem of innovations in design may be easier to surmount than with Section 207 because of roving teams of experts from the Washington office who are authorized to give technical assistance to cooperatives and who, presumably, have sufficient authority to see that their recommendations are accepted by the local underwriters.

Nevertheless the architect should be warned that some offices may at first be cool to this program with all that this can mean in impediment and delay. Any such manifestations should be reported to the cooperative division in the Washington office.

FHA makes clear that it will deal only with a bona fide cooperative, 90 per cent of the full membership of which must be signed up before an application will be formally received and processed. Anything resembling a speculative promotion, if it can be discovered,

[2] *This section also provides for temporary cooperatives, existing only for the purpose of building single family homes for their members, which on completion are transferred to individual fee ownership.*

will be frowned upon. At the same time, since it is recognized that some local promotional and organizational work is essential, an allowance of 3 per cent of the development cost for this purpose may be included in the cost calculation. If any of this work is done by the architect in addition to his usual services, he may arrange to receive remuneration from this allowance.

Getting a job for a Section 213 project is a less direct procedure than with Section 207. Familiarity with both FHA and cooperative procedures will be essential. Ability to get in on the organizing stage, to explain the possibilities and the procedures to a nucleus of a cooperative group, to arrange preliminary talks with FHA officials, should help in nailing down a potential job. One good method will be to make an arrangement with leaders of a local labor union having a large, stable, and cohesive membership. Veterans' groups offer another promising source of clients. The arrangement in any case may be for architectural services only or, in combination with a builder, for both design and construction. However, let the architect avoid the well-meaning, inexperienced, cooperative-smitten, leaderless group unless the funds for his services are first put in escrow.

"Yield Insurance" Housing

The Housing Act of 1948 gave to FHA a new Title VII providing for the insurance of the yield on a 100 per cent equity investment (in contrast with the insurance of a mortgage). This complicated measure was designed to be of interest to insurance companies and other institutional investors. To date the expected interest has not been manifested. The architect, therefore, is not likely to find the exploration of this feature to be fruitful.

Military Housing — The Wherry Act

The Wherry Act of 1949 added a new Title VIII to the National Housing Act which permitted the armed services to grant leases of government-owned land or military installations to builders and authorized the FHA to insure mortgages built on such leaseholds. Due to operational complexities, which slowed up the program, amendments enacted in 1950 resulted in the procedure described below, which is now in force:

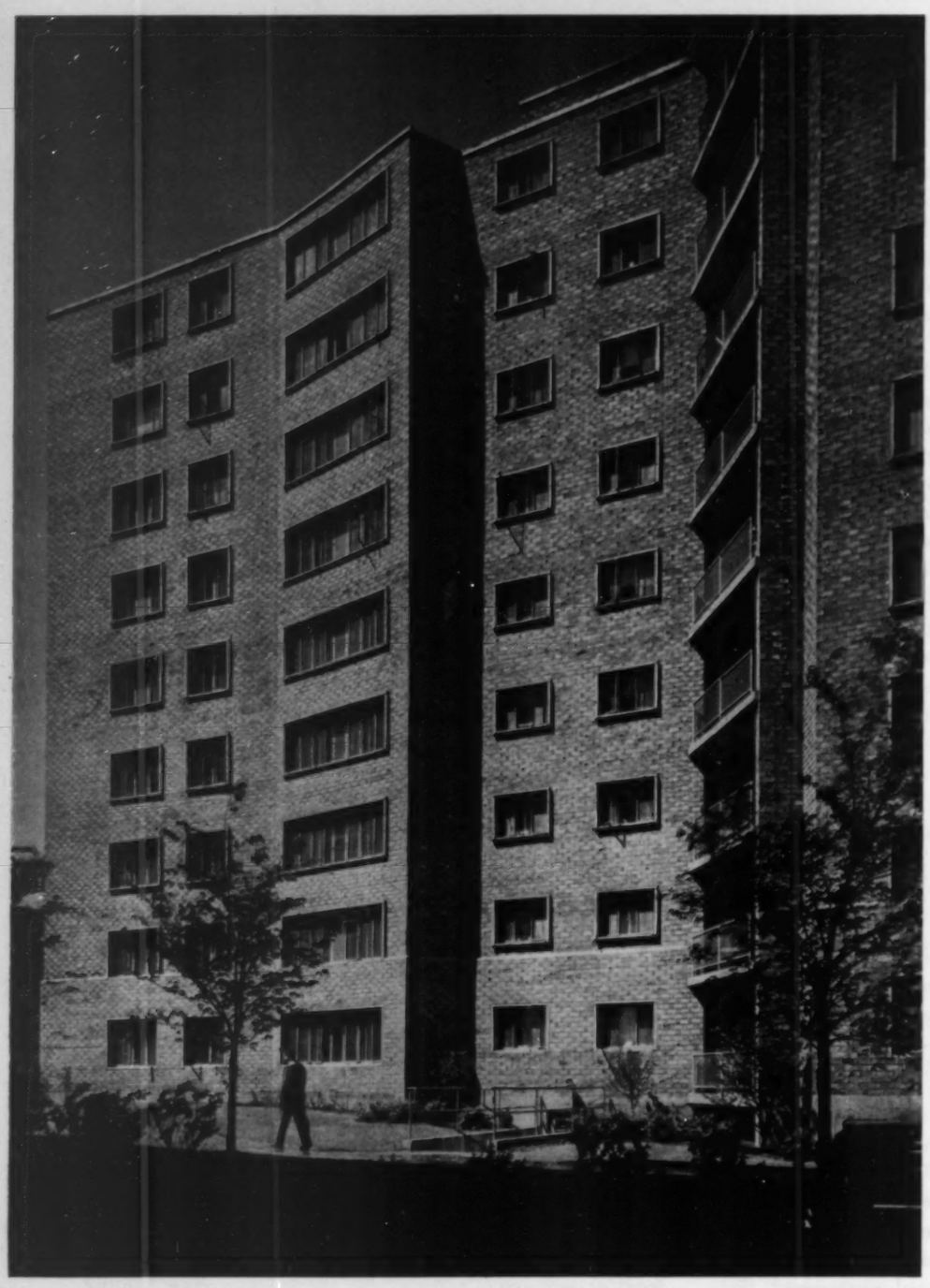
Determinations of housing need and eligibility for insured financing will be made by the Corps of Engineers (for Army and Air Force posts) and by the Bureau of Yards and Docks (for the Navy) in consultation with the local FHA insuring offices. Having determined upon the general characteristics of a project, the military agency (CE or YD) will select an architect-engineer to prepare all plans and specifications. "The FHA insuring office will be requested to furnish the military field office with a list of qualified local architects having experience in FHA rental housing." So read the instructions issued by the Department of Defense. FHA, however, is emphatic in stating that this simply means the transmittal of a list and not in any sense the making of recommendations. Nevertheless, an architect interested in this program should be well known, or should make himself well known, to the local FHA people. He had better also be known to the military authorities where housing is likely to be built, since the selection does not have to be from the FHA list. Note particularly that, under present rules, the selection is made by the military authorities in the field. So far as can be learned, it will do no good to try to work on the officers in Washington.

Having got the assignment, the selected architect-engineer proceeds to develop his presentation in the same way that he would for a Section 207 project, except that he must work to the rental limits and other requirements laid down for the particular project. The architect's fee will be negotiated with the military agency, payment will be made to him by the military agency, and his services presumably are ended when his drawings, specifications, and estimates have been processed and approved by FHA (as evidenced by the issuance of an Appraisal and Eligibility Statement) and then accepted by the military agency. The agency then asks for bids from builders, the selected builder assuming the position of an FHA sponsor. From the architect's angle, the whole process is comparable to any other architectural work for the armed forces rather than to a normal FHA operation. The distinction is in the required familiarity with FHA operations and the necessity for satisfying the military client at the same time as meeting FHA standards and requirements.

A Few Final Admonitions

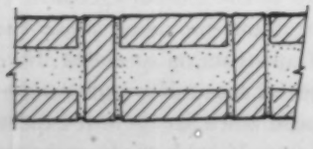
Protracted though it may seem, the above is a brief go-over of the ways in which the federal government affects the craft of the rental housing architect. There is still much more to learn. Much of it cannot be given in a general statement because of numerous variations among the local authorities and branch agencies with which he must deal. Much of it can be learned only from experience.

However, the task of learning will be worth-while, for a large share of potential future business lies under the direction or influence of the federal agencies. To be successful, the architect must be much more than a competent designer and construction specialist. He must be a diplomatist, a financial counselor, and enough of a market analyst and social scientist to out-expert the official experts, if necessary. If he is to do more than a routine job, he must have tact, courage, understanding, and patience to deal with the inertias and protective devices of officialdom. He should seek to command respect for his own knowledge and to gain his ends by persuasion if at first they are at variance with the official pattern. The use of "influence" in most cases will be futile. The road may sometimes be hard and the way intricate, but, because this is so, those architects who master the procedure have obtained a valuable asset.

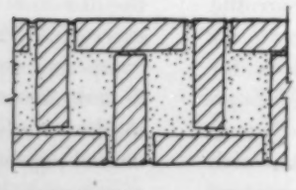


Hedrich-Blessing Photos

8-in. wall, upper stories



10½-in. wall, first story



Unique reinforced rowlock brick construction pioneered by Holsman, Holsman, Klekamp & Taylor at Lunt-Lake Apartments. Every other brick is set in rowlock fashion as a wall tie. Wall is reinforced with two ½-in. vertical rods 24 in o.c. and two ⅜-in. horizontal rods in every third course; then wall is made monolithic by pouring grout to fill interstices. This system is said to have saved cost and erection time, by permitting a third more wall area to be laid up per mason-day. The wall is both load-bearing and curtain, saves exterior columns and spandrels

LUNT-LAKE APARTMENTS, CHICAGO

Pace Associates

Holsman, Holsman, Klekamp & Taylor

Frank J. Kornacker

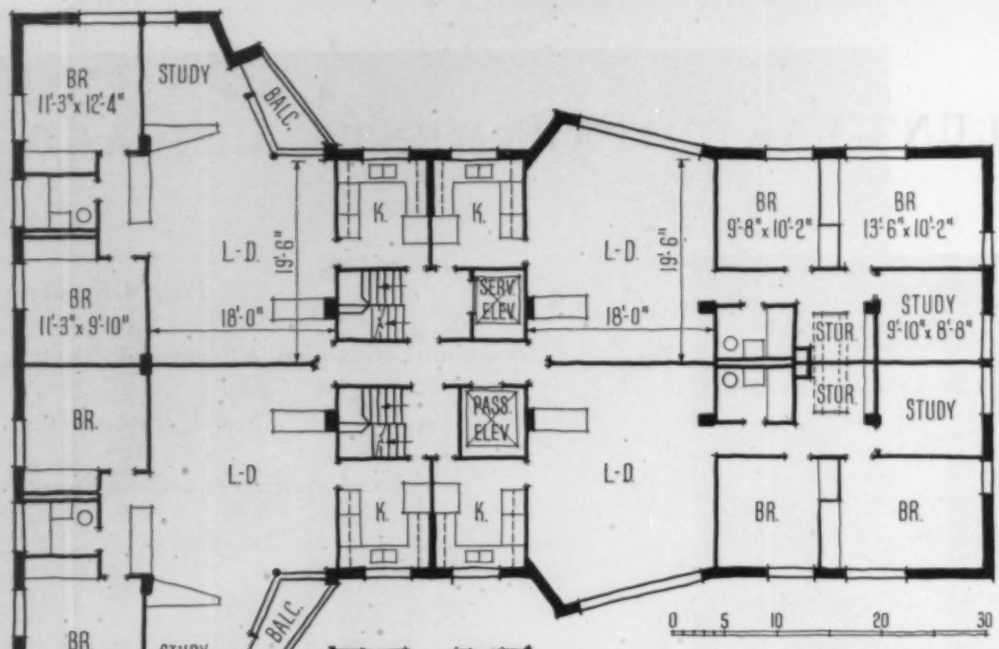
Associated Architects and Engineers

IN MAN'S constant effort to find ways to live in a large city, Chicago is currently much in the news for apartment innovations of considerable variety. There seems to be an unusual willingness to accept the apartment way of life as a permanent situation, not merely as a stop-gap to the home in the suburbs. Maybe it's the spatial vastness of Chicago (shades of Daniel Burnham!) or maybe it's the great lake front. At any rate a large number of Chicago people seem willing to invest in cooperative apartments and settle down in a large building. Thus Chicago, perhaps more than any other city, is building family-size apartment units, as against the ubiquitous efficiency unit.

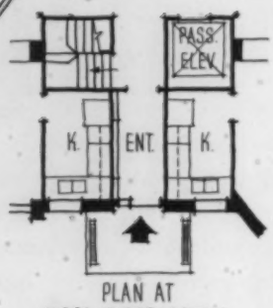
Lunt-Lake is a more than usually interesting example of Chicago's current crop of mutual ownership buildings. Its apartments, while not mansions, all have two or three bedrooms, lots and lots of closet and storage space, open outlooks toward the lake view, and economical construction. Its reinforced rowlock brick construction is unique (see opposite page). And it uses an economical system of floor slabs and concrete block partitions to save construction cost and cubage.

This floor system consists of prefabricated 16-ga metal box joists with reinforcing steel pre-set into the box, and 3-in. lightweight precast slabs grouted in place after assembly. The system keeps story height to 8 ft 4 in., and permits a four-story walkup with virtually no more steps than in the once-prevalent three-story-English-basement type of building.

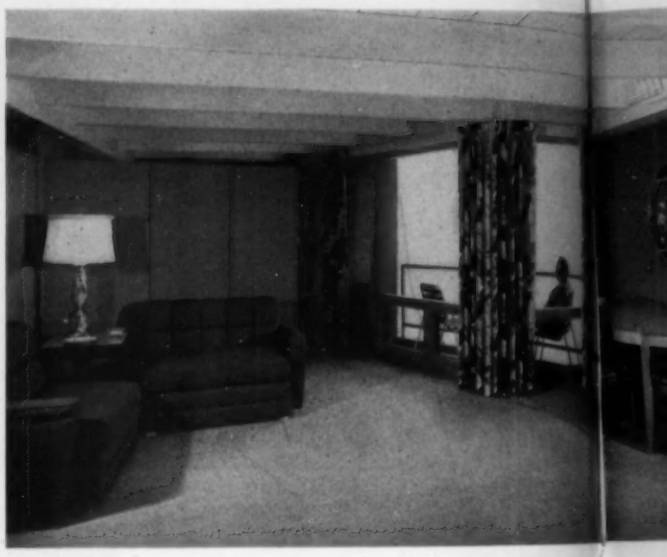
One of Lunt-Lake's three buildings is a four-story walkup; the other two are nine-story elevator buildings. The top floor of the walkup building adds compensation for the extra climb with studio-type suites with sloping ceilings following a ridge-type roof, and open fireplaces. All other apartments have the floor joists and precast slabs exposed; partitions are of exposed, painted concrete block, 4 by 12 by 3½ in.



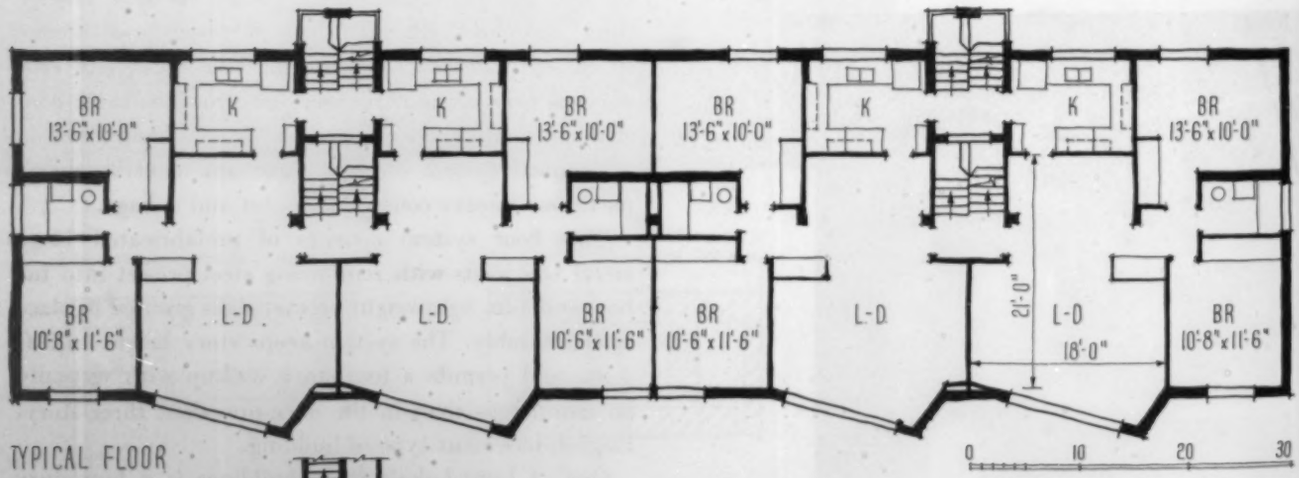
TYPICAL FLOOR



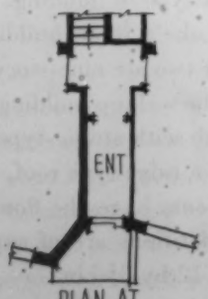
PLAN AT
FIRST FLOOR ENTRY



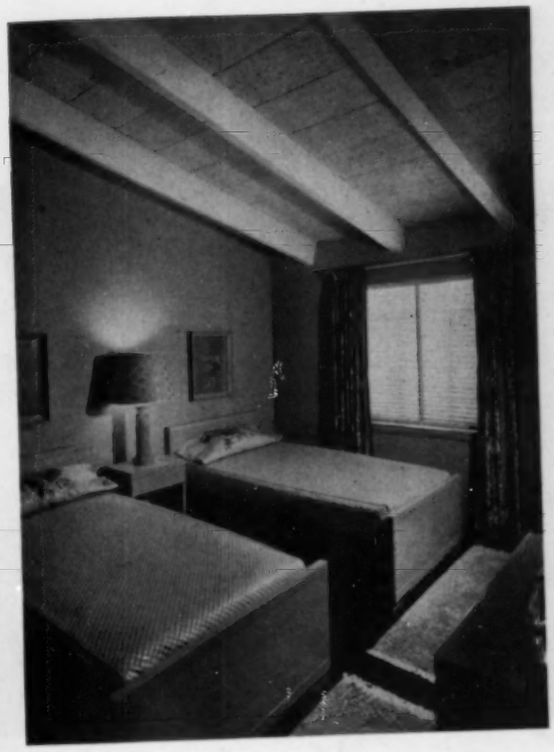
Typical floor plan (above) of the two nine-story buildings, and typical floor plan (below) of the one four-story walkup. Top floor of the walkup building has special studio suites, with open fireplaces and sloping ceilings following a ridge-style roof



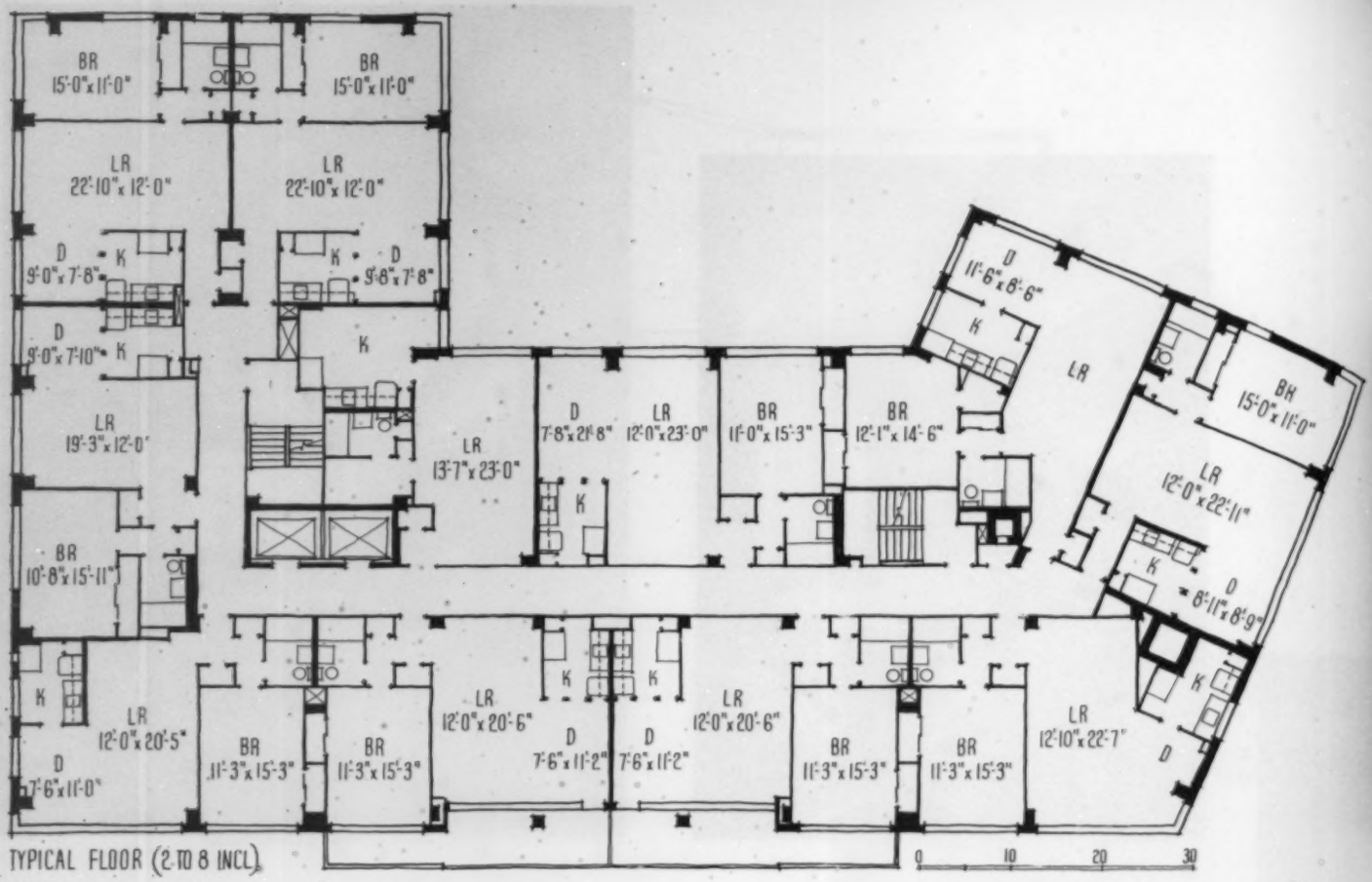
TYPICAL FLOOR



PLAN AT
1ST FL. ENTRANCE



Hedrich-Blessing Photos



TYPICAL FLOOR (2 TO 8 INCL)

CRESTVIEW APARTMENTS

Wisconsin Avenue, Washington, D. C.

Berla & Abel, Architects

Otto Vogt, Structural Engineer

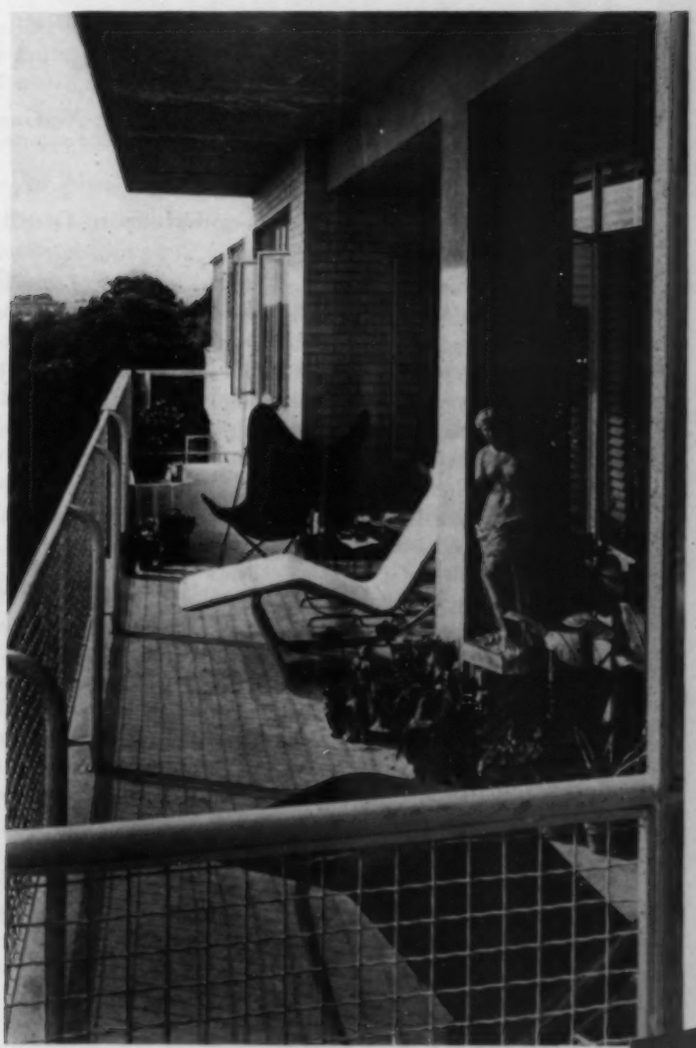
General Engineering Associates, Mechanical Engineers

Robert Lautman Photos

THIS building reverses the field of 608 apartment layout — instead of the usual high proportion of no-bedroom units, it has 77 units with bedrooms, only 11 "efficiency" suites. And it goes against the tide also in offering larger than usual rooms. Thus it offers more commodious living, and is expected to have long-term competitive advantage over the many, many 608 buildings now coming into the Washington market.

Parking space was obtained under the rear portion of the building by leaving columns exposed and omitting exterior walls. Ceilings over this space are heated to prevent cold floors above. A fenced-in roof deck above the eighth floor provides the tenants a place for sun bathing or a cool spot to sit on a summer evening.

Here too (see also p. 133) the device of the inside kitchen, with mechanical ventilation, is used to add spaciousness at the windows. Combined living and dining space, facing outward through wide strip windows, is quite pleasant, and the views are good, for the site is unusually high



Courtesy Museum of Modern Art: Richard G. Askew Photo

ARCHITECTURAL ACOUSTICS

By Richard H. Bolt and Robert B. Newman

Article 3, Part One: Good Hearing Conditions

Good hearing conditions and satisfactory acoustic environment are the two essential goals of architectural acoustics. These general objectives and their dependence on basic planning aspects of architecture were discussed in Article 1 of this series. Engineering techniques for achieving environmental noise control were treated in Article 2 which commenced with a discussion of the characteristics of noises and their effects on people. Similarly, the present article deals first with the nature of sounds we want to hear and with the subtle subjective reactions we undergo when we say: "That sounds good."

The Meaning of Good Hearing Conditions

Viewed simply, the sounds in which we are interested are either speech or music. Of course singing has physical characteristics of both speech and music, and it usually conveys both the word meaning of speech and the esthetic message of music. The relative importance of these two contexts may vary all the way from the patter song of Gilbert and Sullivan (essentially words) to the liturgical chant (essentially tone). These differences may lead to different requirements in acoustic design. But such cases can be analyzed in terms of the two basic classes, speech and music.

Hearing Conditions for Speech

Saying we want to hear speech is virtually synonymous with saying we want to understand speech. The word "understand" can have a double meaning, however; if all the words of a lecturer are correctly perceived through your ear but you still do not know what the lecturer meant, you can hardly blame that on the acoustics of the room! Perhaps the desired attribute is better expressed as speech intelligibility. To avoid such confusions as far as possible, specialists in acoustics have adopted some precisely defined terms, of which the following are particularly relevant here.

Percent Articulation (*PA*) is the percentage of words or sentences that are correctly perceived under a given set of conditions. Thus the *word PA* might be obtained in an auditorium by having a talker read 100 different words and a listener at some seat write down the words he heard. If the listener got 69 words correct, we would have measured a *word PA* of 69.*

** To insure scientifically valid results, a number of specific requirements are imposed on PA tests. The words are selected to give an accurate statistical sample of the language. The talker and the listener must be "normal" in their speaking and hearing, respectively; and results from several talkers and listeners should be averaged to smooth out individual differences. Each word should be spoken normally, and inserted in a carrier sentence so that the normal interfering effects of words spoken just before or after are included in the test conditions. Such tests have been refined and widely used, and their results give a reliable and meaningful measure of speech intelligibility in rooms. For fuller discussion see Beranek, L. L., Acoustic Measurements, Chap. 17, New York, John Wiley & Sons, Inc., 1949.*

Kleinhans Music Hall in Buffalo is an outstanding example of collaboration between architect and engineer to create the best possible hearing conditions. Acoustical requirements considerably affected the general form of the auditorium and decided much of the character and texture of ceiling, wall and floor coverings. M.I.T. sound experts, directed by Dr. Bolt, recently conducted tests in Kleinhans to measure the acoustical properties that make this auditorium one of the best. Eliel and Eero Saarinen, Architects; F. J. and W. A. Kidd, Architects; Charles C. Potwin, Acoustical Consultant

The *sentence PA* can be obtained in a similar way by using a large number of properly selected sentences. Here the score will be higher than for words under the same conditions, because the sentence carries additional context: we can guess what some words should have been even though we did not hear them correctly. As a matter of fact, even words carry some context. You might hear "leff," for example, but you would probably write down "deaf."

For this reason acousticians have devised special lists of non-sense syllables, selected so that the list as a whole contains a proper statistical sample of all vowel and consonant sounds of the language. The score obtained when using such non-sense syllables is called the *Articulation Index* (*AI*) which is our most basic measure of the number of speech sounds that are heard correctly. Extensive testing has shown that these different measures are interrelated. If in a particular room under a given set of acoustic conditions the *AI* is 50, then the *word PA* will be about 90 and *sentence PA* will be about 98.

This is highly useful information. A preacher may say the congregation doesn't appreciate his sermons. If we measure his church and find that the average *sentence PA* is, say, 40 we can blame it on the room; but if it is 98 — ! Such testing largely eliminates such prevalent mysteries as "dead spots" in large auditoriums. Perhaps the person who sits there is hard of hearing. If, on the other hand, the room acoustics are faulty, the condition can be described accurately and indisputably, on a numerical scale, by articulation tests, leading to a contour plot of PA values throughout the room.

Fortunately we do not have to wait until the room is built to know pretty well what the PA will be; although some final adjustments in acoustic treatment are still often needed, just as ventilating systems, doors, and other mechanical details often require adjustment. The basic AI can be computed in terms of physical properties of sound in a room — the reverberation time and the spectrum (frequency characteristics) levels of background noise and speech. Laboratory research and field experience have led to the establishment of relations between AI, PA and the various control measures that can be incorporated in the design and construction of a room.

Apparently we have evaluated speech hearing conditions only in terms of intelligibility; we have ignored naturalness, tone quality and similar attributes. Speech can be highly intelligible and yet distorted in a special way so that we cannot recognize the voice. This is more likely to occur over radio or telephone than within a room. If a sound reinforcing system is used in the room, such distortions become possible; so in this case we must consider naturalness or realism of the amplified speech in addition to its intelligibility. This is a matter of sound reinforcing equipment design.

Hearing Conditions for Music

The meaning of good hearing conditions for music is a more complicated question. There are differences of opinion among specialists, and there is no precise, quantitative rating for music corresponding to articulation tests for speech. Attempts are being made to rate such attributes as tone quality, but the problem is inherently difficult because it is largely an esthetic matter, a question of taste and personal preference.

We can, with some degree of generalization, consider three attributes of music hearing in rooms: singing tone, definition, and freedom from distraction. A room with singing tone prolongs and blends the musical sounds, giving richness and resonant reinforcement. This attribute is completely lacking out-of-doors if there are no reflecting surfaces around the musical instruments. Because a properly designed room contributes singing tone, the room is in a sense a part of the musical instrument, enhancing the quality.

With excessive blending, however, the successive sounds blur and mask each other, and we say the definition has deteriorated. Perhaps the highest degree of definition would be present with the music performed out-of-doors and with the listener nearby so that every sound is heard distinctly and separately. In a room we require a certain degree of definition if the esthetic intent of the composer is to be retained; and a room should probably have greater definition for rapid staccato music than for slow flowing music.

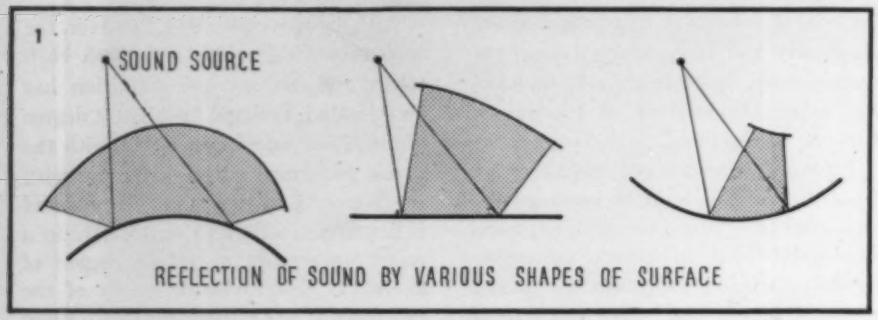
As a matter of fact, the acoustical properties of rooms have influenced the compositions themselves; organ chorales were written for churches with prolonged reverberation and much opera music was conceived for the relatively low reverberation condition of the classical opera house.

Even with a satisfactory degree of definition and singing tone, the hearing conditions will be poor if we are distracted by noises extraneous to the music. The intermittent intrusion of noise from an auto horn or unmuffled truck mars many theaters and concert halls. The steadier noise of continuous traffic or of the ventilating system may not be noticed consciously, but above a certain level it is masking out some of the musical sounds we would hear otherwise. Our compensatory efforts at ignoring the intrusion is interfering in some measure with the full enjoyment of the music.

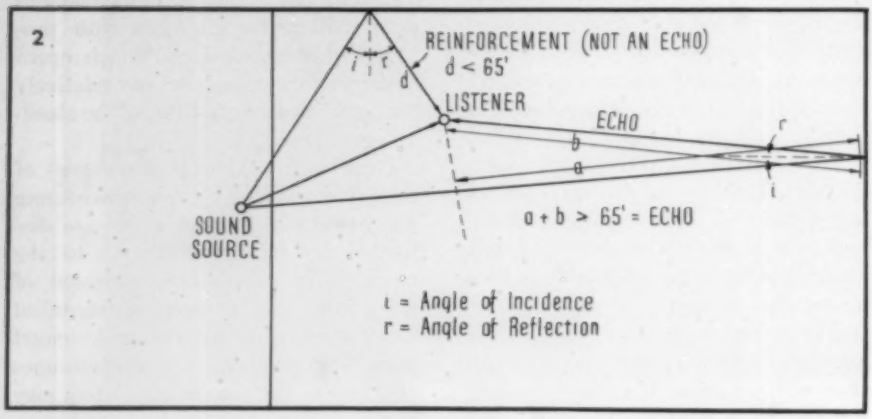
The concept of definition is somewhat similar to that of articulation, and we may in time be able to measure the degree of definition by objective tests. Singing tone is more disputable and complex; perhaps its evaluation must always rest on collected judgments of "qualified" listeners. Distraction is a subtle psychological reaction that resists precise measurement. In spite of these uncertainties, however, the science of room acoustics has progressed, and reliable engineering procedures are available to guide the design of listening rooms.

Design Criteria

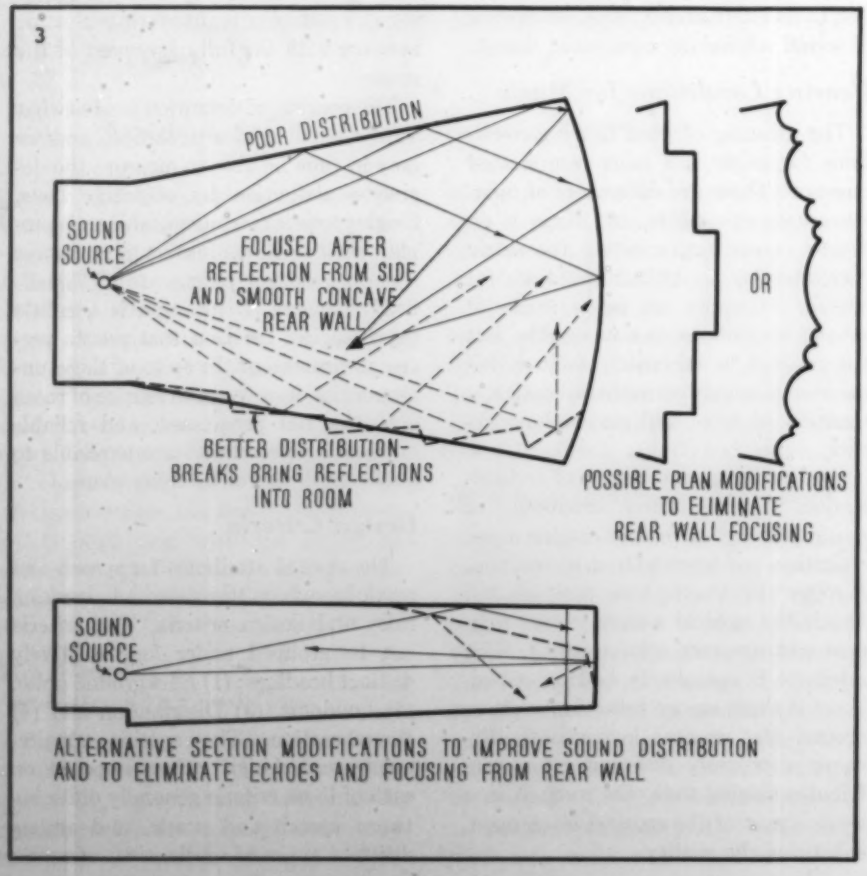
The desired attributes for speech and music have been translated into working rules and design criteria. The criteria can be grouped under four relatively distinct headings: (1) Background noise, (2) Loudness, (3) Distribution and (4) Reverberation. The specific requirements and design values imposed on each of these criteria generally differ between speech and music, and among different types of music, sizes of rooms



1. Sound reflected from convex or flat surfaces may contribute useful reinforcement to the direct sound; however, reflections from a concave surface are likely to be concentrated into excessively strong components. 2. Simple ray diagram shows long delayed reflection from rear wall (an echo) and quick reflection from side wall (useful reinforcement). An echo results when the reflected sound lags the direct sound by more than $\frac{1}{17}$ of a second (this is approximately equivalent to a distance of 65 ft)



3. How the shape of the enclosure affects the distribution of sound. Heavy lines indicate the outline of the enclosure and light lines the sound waves. Modifications illustrate good design principles.


3
POOR DISTRIBUTION
SOUND SOURCE
FOCUSED AFTER REFLECTION FROM SIDE AND SMOOTH CONCAVE REAR WALL
BETTER DISTRIBUTION- BREAKS BRING REFLECTIONS INTO ROOM
OR
POSSIBLE PLAN MODIFICATIONS TO ELIMINATE REAR WALL FOCUSING
SOUND SOURCE
ALTERNATIVE SECTION MODIFICATIONS TO IMPROVE SOUND DISTRIBUTION AND TO ELIMINATE ECHOES AND FOCUSING FROM REAR WALL

and functional demands. But in all cases, good hearing conditions will be achieved only if all four types of criteria have been satisfied within certain limits.

In the rest of this article we consider background noise, loudness and distribution, and discuss some of the engineering methods by which the requirements are met in the design and construction of rooms. Reverberation analysis and control will be discussed in a subsequent article.

Background Noise Requirements

The background noise in the room should be so low that it does not mask the weakest sounds of speech and music. The effect of excessive noise on speech intelligibility can be measured readily; the PA diminishes continually as the noise level increases above a certain threshold. Common noises are those from traffic and from ventilating systems. On the other hand, listening to concerts in some of the partial-enclosure music festival buildings, remote from cities (Tanglewood, for example) is an inspiring experience — largely because the background noise is extremely low, usually in the range of 15 to 25 decibels arising from natural sounds of wind and wild life.

Excessive noise in a listening room is a cardinal sin of acoustics. It is entirely unnecessary. Criteria values for acceptable noise levels are well established, and the means for controlling noise by the required amount are thoroughly proved, accessible engineering procedures. Average noise level criteria were tabulated in Article 1. Additional considerations regarding the frequency characteristics of the noise were discussed in Article 2, together with design and construction procedures for attaining a prescribed amount of noise reduction.

Loudness Requirements

The second criterion states that the sounds we want to hear must be sufficiently loud. Obviously they must lie above the threshold of hearing; more realistically, they must lie above a threshold of masking which is approximately equal to the background noise in each frequency band. If this were the only consideration, one might be tempted to accept a higher than optimum background level and make the weak passages of music ride above the noise by amplifying the music. In fact, we frequently do just this with our car radios.

This approach is strictly limited, how-

ever. Musical sounds cover a wide dynamic range of 70 or 80 decibels between the weakest and the strongest sounds generated by an orchestra. The most intense sounds of loud brass and percussion are already so loud, at least close to the instruments, that they lie near the upper border of comfort. They would not have to be amplified very much before they sounded annoyingly loud or even painful. One can compress the dynamic range by amplifying the weak sounds more than the loud. Some restriction of the total dynamic range occurs in radio and phonograph reproduction. This is one of the reasons why reproduced music never sounds exactly like the real thing.

The dynamic range of speech is less than that of music; the weakest sounds are about 30 decibels below the strongest. Therefore some compromise can be made in speech auditoriums, by employing a sound amplifying system and raising the speech level above normal in order to ride over noise. But again there is a fairly definite limit (around 80 decibels) above which the average speech level cannot rise without becoming uncomfortable.

These comments may lead the architect to wonder what he can do about the loudness criterion in designing a room. At the risk of some oversimplification we can answer the question in terms of the size of the room and the kind of sound involved. We arbitrarily classify rooms by size as follows:

very small	less than 2500 cu ft
small	2500–25,000
intermediate	25,000–250,000
large	250,000–2,500,000
very large	more than 2,500,000

The two extremes, *very small* and *very large*, present some specialized acoustic problems beyond the scope of these general introductory articles. This is particularly true with reference to the loudness problems. Any sound we want to hear will be loud enough in a *very small* room. It is virtually impossible to achieve adequate loudness in a *very large* room by means of the design of the room itself: an amplifying system is necessary. Special problems in the *very small* room include the avoidance of low frequency boominess of music, proper frequency balance of reverberation, and the smoothing out of standing waves. The *very large* room has critical problems of echo and reverberation control.

Unamplified speech from a normal talker can be adequate in almost any *small* room, but in a *large* room the normal human voice is incapable of producing adequate loudness without amplification. Whether or not amplification is needed for speech in an *intermediate* size room depends critically on the degree of reinforcement provided by the shape, finishes, and general acoustic design of the room, discussed later.

Let us point out some possible misunderstandings of the above general rules regarding size. A too frequent example is the *small* conference room in which it has been necessary to employ microphones and loudspeakers to make the conferees heard around the room, with the attendant inconvenience of using "props."

The loudness criterion has not been violated: instead, there is probably too high a background noise, or often the room has been excessively treated with sound absorbing material, perhaps in an attempt to reduce the noise or perhaps in ignorance. Properly located reflecting surfaces are highly desirable for giving reinforcing reflections. In a long, low room the center portion of the ceiling is particularly useful as a reflecting surface, since it is the one plane that is "seen" in common by all voices around the room (at least more so than a wall directly behind a talker).

Another apparent contradiction is the orator or strong voiced preacher who can make himself "heard" without amplification in a room of ½ million cu ft or more. First, we would not classify his trained voice as normal. Second, we would venture that both he and his listeners would be happier if he used a properly designed reinforcing system — and articulation tests would probably show that he was getting across less information than he thought. In some cases, reluctance to use a microphone may stem from the orator's pride — but he will use glasses if tests show his vision needs them.

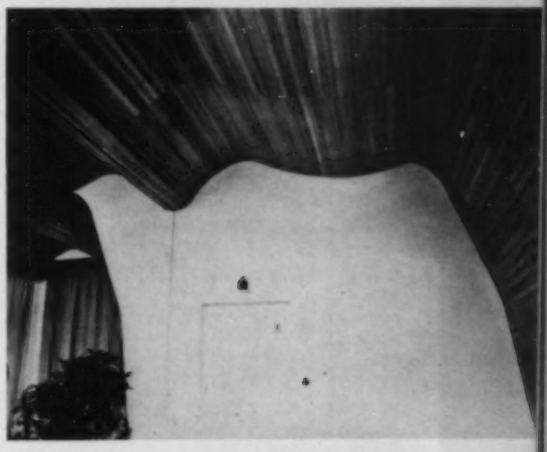
Loudness requirements for music are not as precise as those for speech, and they depend widely on the type of music. To some extent, the loudness problem is solved implicitly through musical conventions that have emerged from centuries of playing music in rooms. It is unusual for a full symphony orchestra to perform in a *small* room (too loud) or for a string quartet to play in a *very large* auditorium (not loud enough). The solo voice partially adjusts its loudness to the size of the room.

When the architect undertakes the design of a large room for music, he

(*Continued on page 216*)

Fritz Kaeser

Music Canopy, Aspen, Colo. Plywood canopy and back wall reflect music into seating area and help performers hear each other. Splayed shapes diffuse and distribute sound. Tent reflects high frequencies, giving brilliance and desirable reverberation. Architects: Saarinen, Saarinen & Assoc.; Acoustical Consultants: Bolt, Beranek and Newman

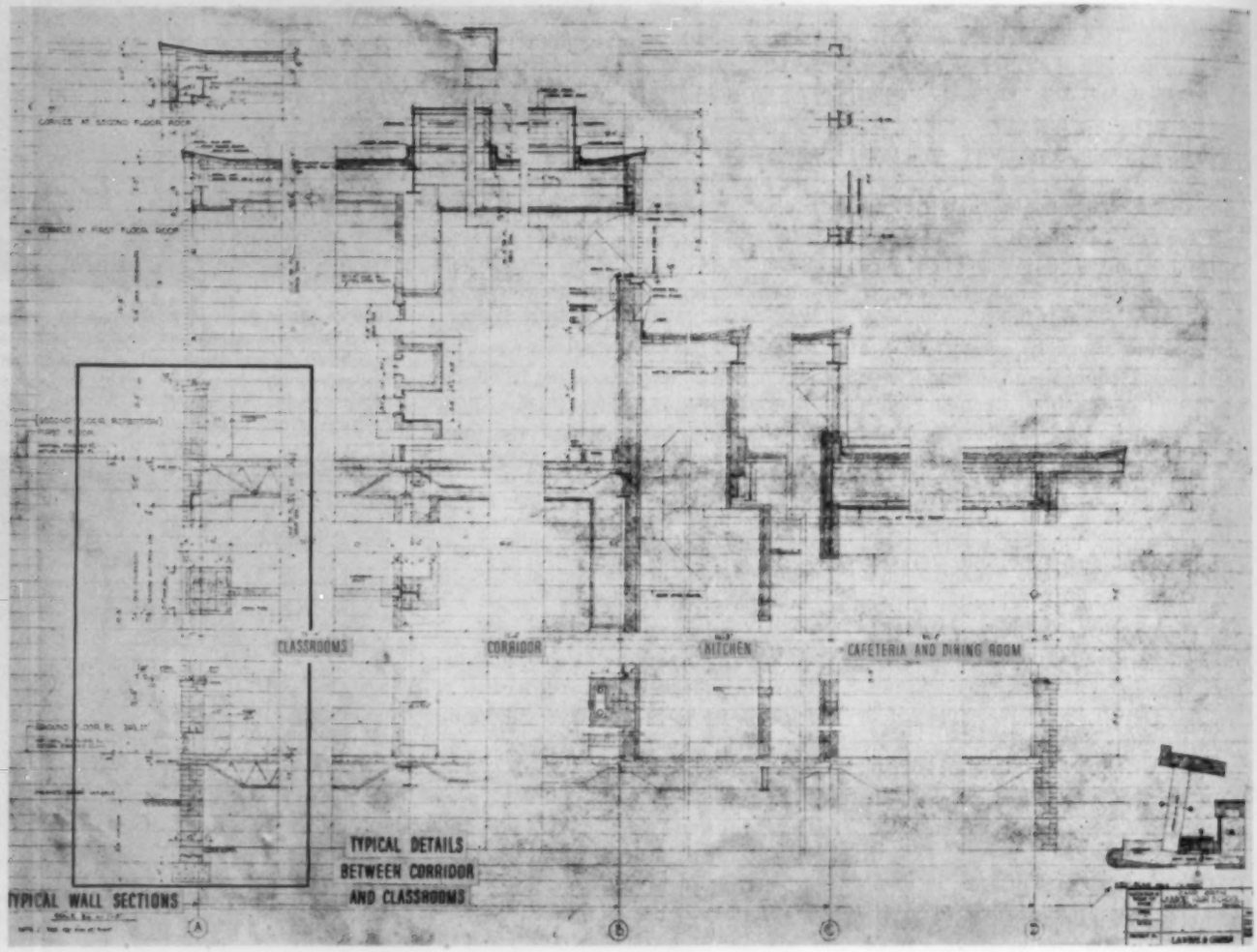


Photos Courtesy Museum of Modern Art

Above: Library, Viipuri, Finland. Ceiling shaped to improve distribution of sound in long room used for community discussion meetings. Designer: Alvar Aalto. Below: Experimental Studio, Acoustics Lab, M.I.T. Used for research on room shaping to get optimum sound distribution

Auditorium, Esso Research Center, Linden, N. J. Thin, shaped plywood gives sound distribution and reverberation control. Voorhees, Walker, Foley and Smith, Architects. Bolt, Beranek and Newman, Acoustical Consultants

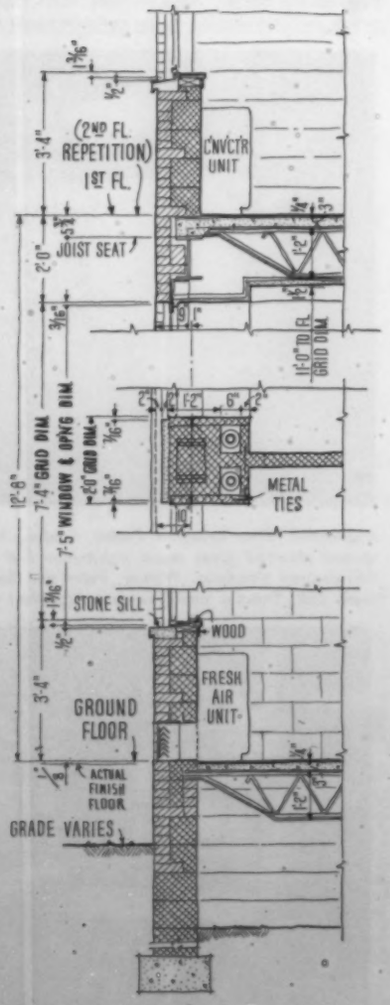
Courtesy Standard Oil Co. (N. J.); Corsini Photo



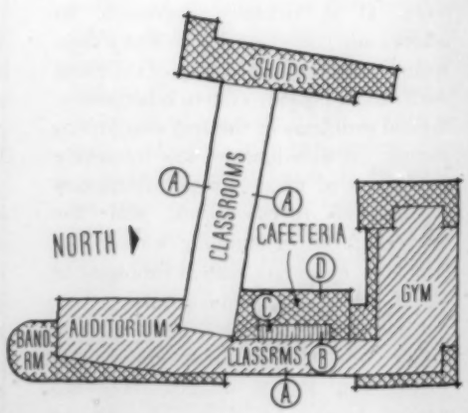
The fundamental basis for modular design is modular details . . .

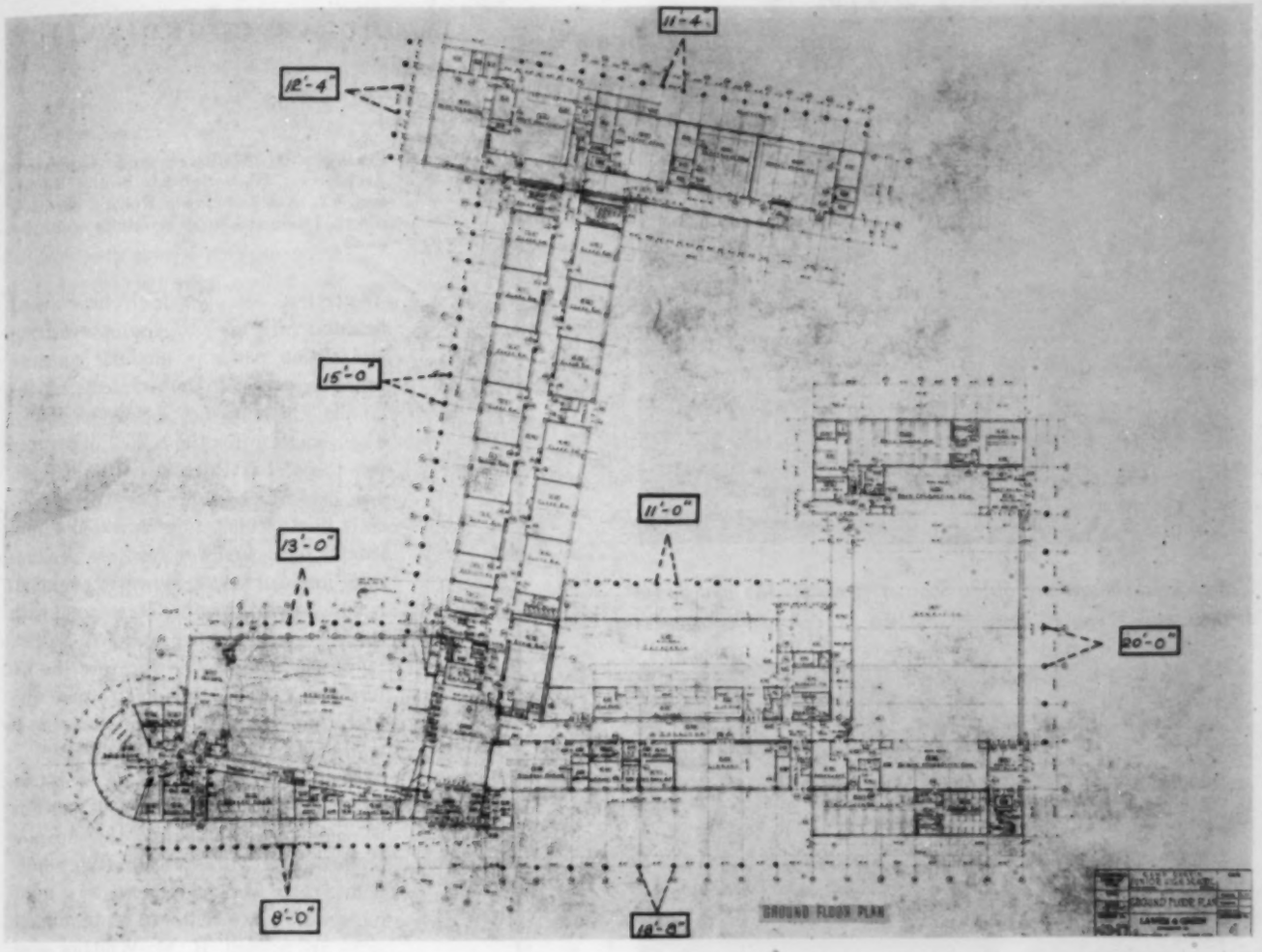
MODULAR COORDINATION

Two examples demonstrating development of office practice



Modular details in the drawing above are laid out with the aid of 8-in. horizontal grid lines because there are three brick courses to 8 in. Drawings and dimensioning are simplified; the need for fractions is reduced by referencing dimensions to grid lines. Drawing at left is wall section "A" enlarged





. . . to correlate plans with them, building dimensions of this school are in multiples of 4 in.

The primary objective of modular coordination is to reduce construction costs, and the methods recommended for accomplishing this are (1) to size manufactured products so that they will fit together without alteration on the job, and (2) to dimension plans and details so that the building dimensions are correlated with modular sized products.

In continuing its presentation of this vital subject, the* RECORD *presents recent work of two firms employing the principles of modular coordination, with emphasis on how it is used in the drafting room.

Example 1: Lawrie and Green, Architects and Engineers. Proposed Junior High School and Sunbury Hospital, both Harrisburg, Pa. Designed for modular materials

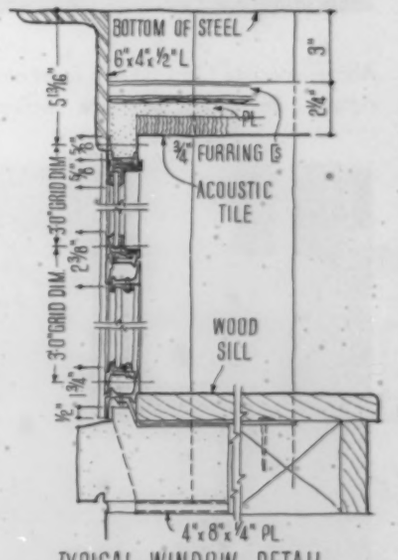
THE RECORD deems it particularly appropriate to publish the drawings of a school by this firm because Mr. Green was the original chairman of the American Standards Assn. Project A62 on modular coordination.

The drawings were made in accordance with drafting methods established by the A62 Project — using grid lines to locate positions of modular products in detail drawings and also for dimensioning purposes.

The modular details show the relation of the building parts to the grid, and thus their relationship to each other. Conventionally, the 4-in. grid line is the smallest increment. In the details on the opposite page, 8-in. grid lines were used because modular brick in the exterior walls is nominally 2⅔ in. high, or three courses to 8 in.

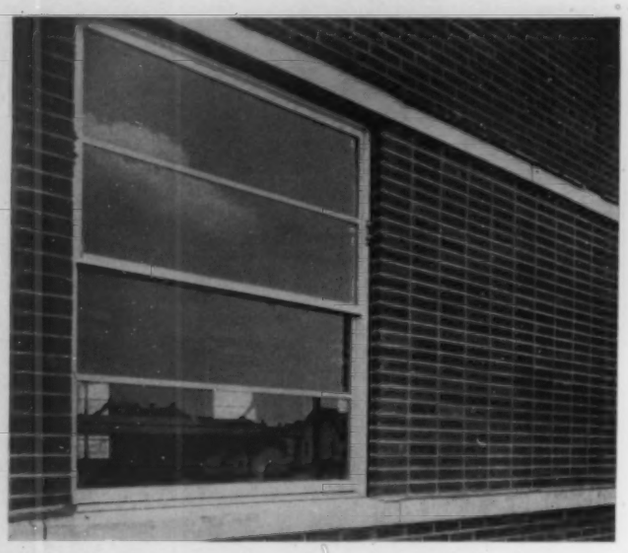
Nominal masonry dimensions (which are joint center-line dimensions) are used for layouts with the A62 drafting system. Horizontal layouts involve only 4-in. and 2-in. multiple dimensions. Vertical nominal dimensions avoid fractions except for course heights of 2⅔- and 5⅓-in. These provide flexibility for 8- and 16-in. increments respectively. Elimination of fractions greatly simplifies checking of drawings.

The fact that grid lines 8 in. apart coincide with mortar joints for 2⅔-in.-high brick provides a simple method for determining the location of a grid line with respect to masonry at any point above or below a given reference line. Similarly this can be used for a 5⅓-in.-high unit. This greatly simplifies checking the course heights, particularly for lintels where it is essential that the head of the opening coincide with a horizontal masonry joint. Material take-offs are also simplified.



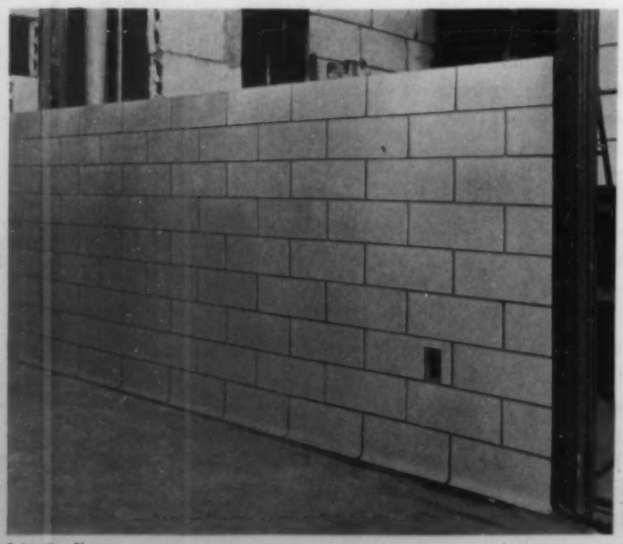
TYPICAL WINDOW DETAIL

By using grid dimensions on window details, some fractions can be eliminated on other drawings at small scale



Photos in this row are of the Sunbury Hospital. The one above shows the fitting of brick around the window without cutting

Above: concrete block backup fitted around window without any cutting. Below: interior tile wainscots also fit perfectly



Schindler Photos

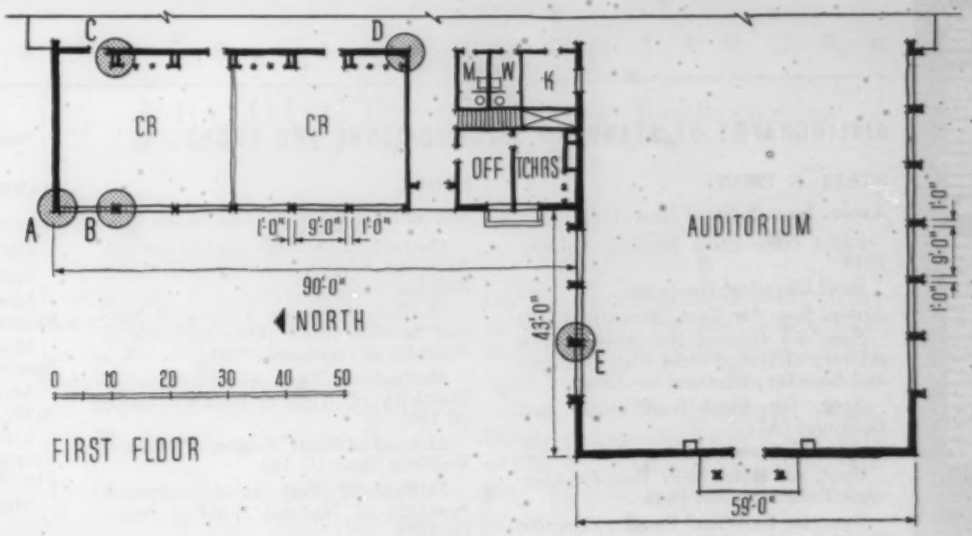
Example 2: Whittier and Goodrich, Architects. High School, South Royalton, Vt. and *Caledonia Record* printing plant. Designed on a partially modular basis

WHITTIER and Goodrich have used modular principles to eliminate cutting and fitting partially modular concrete brick. According to the architects, modular clay brick is not locally available. Their solution for the school illustrated was to use 1-ft thick cavity walls with 4-in. exterior and interior wythes of concrete brick, which comes in 12- and 6-in. lengths for 8- and 4-in. widths, all nominal, modular sizes. However, nominal height, 3½ in., does not correspond with standardized modular masonry height. Since the inner wythe provides the interior wall finish, this doesn't pose any problem of masonry coordination, but it might if facing tile had been desired.

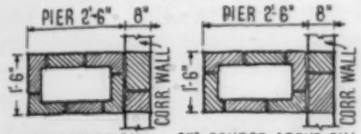
They report that where workmen were laying 300 units per day before when cutting was required, they are now laying 500; that from the drafting standpoint, their work is reduced to a minimum; only a few center to center dimensions are needed. R. M. Whittier says, "We can produce at good speed with our small force when we work with a layout of this type. Details automatically take care of themselves."

Wall panels of this printing plant are 4-ft wide modular sheets of insulation sandwiched between asbestos cement layers

Details of the areas circled on the plan show how the architects worked out their masonry courses to eliminate cutting. All sizes used are standard. The concrete brick, 12 in. long and 4 or 8 in. wide, come in halves and also corner units



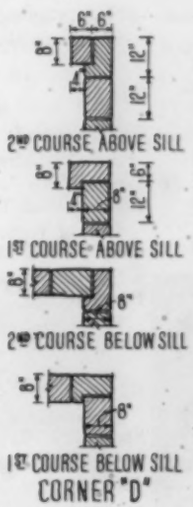
FIRST FLOOR



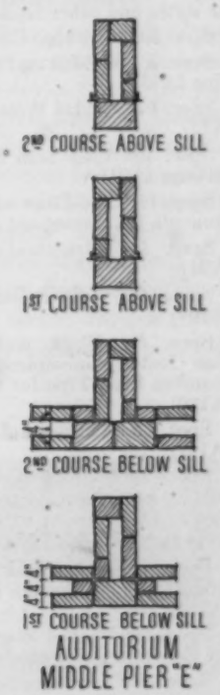
CLASSROOM PIER "C"

CORNER "A"

12"x12" PIER "B"

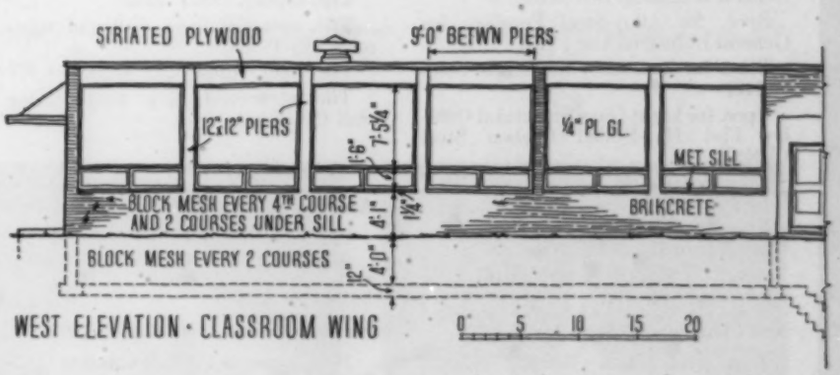


CORNER "D"



AUDITORIUM MIDDLE PIER "E"

Photo Molitor Photo



WEST ELEVATION · CLASSROOM WING

The architects had to order non-stock steel sash to fit the masonry openings for the South Royalton School, but due to the large quantity of the same size window used throughout, there was no additional cost nor time delay

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Spec. for Steel for Bridges and Buildings (A7)

Spec. for Structural Nickel Steel (A8)

Spec. for Billet Steel Bars for Concrete Reinforcement (A15)

Spec. for Rail-Steel Bars for Concrete Reinforcement (A16)

Spec. for Cast Iron Pit-Cast Pipe for water and other liquids (A44)

Spec. for Gray Iron Castings (A48)

Spec. for Welded and Seamless Steel Pipe (A53)

Spec. for Welded Wrought Iron Pipe (A72)

Spec. for Cast Iron Soil Pipe and Fittings (A74)

Spec. for Cold-Drawn Steel Wire for Concrete Reinforcement (A82)

Spec. for Structural Silicon Steel (A94)

Spec. for Cold-Rolled Strip Steel (A109)

Spec. for Black and Hot-Dipped Zinc Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses (A120)

Spec. for Structural Rivet Steel (A141)

Spec. for High-Strength Steel Castings for Structural Purposes (A148)

Spec. for Axle-Steel Bars for Concrete Reinforcement (A160)

Spec. for Fabricated Steel Bar or Rod Mats for Concrete Reinforcement (A184)

Spec. for Welded Steel Wire Fabric for Concrete Reinforcement (185)

Spec. for High-Strength Structural Rivet Steel (A195)

Spec. for Spiral-Welded Steel or Iron Pipe (A211)

Spec. for Iron and Steel Arc-Welding Electrodes (A233)

Spec. for Carbon-Steel Forgings for General Industrial Use (A235)

Spec. for Alloy-Steel Forgings for General Industrial Use (A237)

Spec. for Low-Alloy Structural Steel (A242)

Spec. for Light Gage Structural Quality Flat Hot-Rolled Carbon Steel (A245)

Spec. for Welded and Seamless Steel Pipe Piles (A252)

Spec. for Welded Alloyed Open-Hearth Iron Pipe (A253)

Spec. for Copper Brazed Steel Tubing (A254)

Nat'l Bureau of Standards (27)

Iron and Steel Roofing (78–28 S.P.R.)

Fed. Spec. (43)

Cabinets; stationery, storage, and clothing (steel) (AA-C-31)

Steel, structural (QQ-S-741)

STONE

Amer. Soc. for Test. Materials (13)

Methods of Test for Absorption and Apparent Specific Gravity of Natural Building Stone (C 97)

Method of Flexure Testing of Natural Building Stone (Determination of Modulus of Rupture) (C 99)

Method of Test for Modulus of Elasticity of Natural Building Stone (C 100)

Method of Shear Testing of Natural Building Stone (C 102)

Method of Test for Compressive Strength of Natural Building Stone (C 170)

Amer. Standards Assn. (15)

Specifications for Indiana Limestone (A93.1–1948)

Specifications for Interior Marble (A94.1–1948)

Fed. Spec. (43)

Granite-blocks; recut granite and durax granite pavements (SS-G-651)

Slate; roofing (SS-S-451)

Stone; architectural, cast (SS-S-721)

TILE

Amer. Soc. for Test. Materials (13)

Spec. for Drain Tile (C 4)

Spec. for structural Clay Load-Bearing Wall Tile (C 34)

Def. of Terms Relating to Structural Clay Tile (C 43)

Spec. for Gypsum Partition Tile or Block (C 52)

Spec. for Structural Clay Non-Load-Bearing Tile (C 56)

Spec. for Structural Clay Floor Tile (C 57)

Methods of Sampling and Testing Structural Clay Tile (C 112)

Spec. for Glazed Masonry Units (C 126)

Nat'l Bureau of Standards (27)

Asphalt Tile (225–47 S.P.R.)

Clay Tiles for Floors and Walls (61–44 S.P.R.)

Fed. Spec. (43)

Tile, asphalt (SS-T-306a)

Tile, ceramic; floor, wall and trimmers (SS-T-308)

Tile; floor, rubber (ZZ-T-301a)

Tile; structural, clay, load bearing wall (SS-T-341a)

WALLBOARD

Amer. Soc. for Test. Materials (13)

Spec. for Gypsum Wall Board (C 36)

Methods of Testing Plywood, Veneer and Other Wood and Wood-Base Materials (D 805)

Nat'l Bureau of Standards (27)

Homogeneous Fiber Wallboard (112–43 CS)

Fed. Spec. (43)

Fiber-board; hard pressed, structural (LLL-F-311)

Wallboard, gypsum (SS-W-51a)

WOOD

Amer. Soc. for Test. Materials (13)

Def. of Terms: Timber (D 9)

Spec. for Round Timber Piles (D 25)

Method of Test for Flash and Fire Points by Means of Open Cup (D 92)

Methods of Testing Small Clear Specimens of Timber (D 142)

Methods of Static Tests of Timbers in Structural Sizes (D 198)

Method of Test for Combustible Properties of Treated Wood by the Fire-Tube Test Method (E 69)

Methods of Conducting Strength Tests of Panels for Building Construction (E 72)

Method of Fire Tests of Building Construction and Materials (E119)

Methods of Fire Tests of Door Assemblies (E 152)

Method of Test for Combustible Properties of Treated Wood by the Crib Test Method (E 160)

Nat'l Bureau of Standards (27)]

Lumber, Soft Wood includes Shingles and Molding (16–39 S.P.R.)

Standard Stock Doors (73–48 CS)

Douglas Fir Plywood (45–48 CS)

Hardwood Interior Trim and Molding (76–39 CS)

Hardwood Stair Treads and Risers (89–40 CS)

Windows; sash and screens, Ponderosa Pine; Stock (163–49 CS)

Ponderosa Pine and Sugar Pine Plywood (157–49 CS)

Nat'l Lumber Mfrs. Assn. (33)

National Design Specification for Stress Grade Lumber and Its Fastenings. 1944 Rev. Apr. 1947

Fed. Spec. (43)

Flooring; hard wood block (NN-F-476)

Lumber and Timber; hardwood (MM-L-736)

Lumber and Timber; softwood (MM-L-751c)

MISCELLANEOUS

Amer. Soc. for Test. Materials (13)

Spec. for Extra Strength Clay Pipe (C 200)

Spec. for Standard Strength Perforated Clay Pipe (C 211)

Def. of the Term Screen (Sieve) (E 13)

Nat'l Bureau of Standards (27)

Colors and Finishes for Cast Stone (53–35 CS)

Fed. Spec. (43)

Compound, calking (for masonry and other structures) (TT-C-598)

Glue; casein type, water-resistant (C-G-456)

Paper; building, waterproofed (UU-P-147)

Sheathing-board, gypsum (SS-S-276)

Shingles; roofing, asbestos cement (SS-S-291b)

Slabs, roofing, precast, gypsum (SS-S-439)

Wood preservative; anthracene oil (TT-W-531)

Adjustable Directional Diffusers

The *Trane Louver Cone* and *Louver Fin* air diffusers are designed for use with unit heaters to permit variations in diffusion patterns to accommodate changes in floor layouts. The accessories may be used with horizontal propeller and vertical projection types of steam and hot water unit heaters, used generally for heating factories, warehouses, stores, garages and public places of varied types. Both diffusers have fingertip adjustments, requiring no tools. The flow of heated air may be directed in an almost infinite variety of patterns to produce comfort where it is needed: nozzled vertically or to one side; diffused gently in a cone; spread horizontally beneath a low ceiling, etc. The ability to split the output of heated air two ways may eliminate the need of an extra unit heater.

The Louver Cone diffuser fits projection type unit heaters. It has 24 adjustable blades that fit between a die-cast hub and a cone-shaped spun steel rim. The Louver Fin diffuser attaches to horizontal type heaters. It has 7 horizontal and 56 vertical blades; each is adjustable. The Trane Co., La Crosse, Wis.

Air-Distribution Ceiling Panel

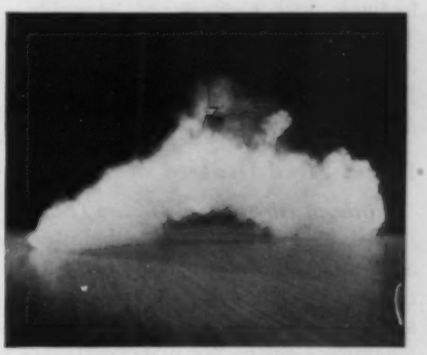
A new 1-ft wide *Multi-Vent* low-velocity air distribution ceiling panel is claimed to eliminate the drafts, dirty ceiling areas around diffusers, noise, uneven temperatures and insufficient air sometimes caused by diffusers. The unit distributes air by displacement rather than by high velocity injection. The panel is manufactured in standard lengths of 1, 2, 3, 4, 5 and 6 ft, with 1 to 3 displacement valves. The cover is of perforated metal. The units are said to be especially well adapted to acoustical ceilings, particularly the metal panel suspended type. Movable partitions can bisect a panel with no ill effects on the air distribution. The units especially are designed for use when comparatively small volumes of air are required for cooling, and for peripheral zoning. Panels are also made in 2 and 3 ft widths. Pyle National Co., Multi-Vent Div., 1334 N. Kostner Ave., Chicago 51, Ill.

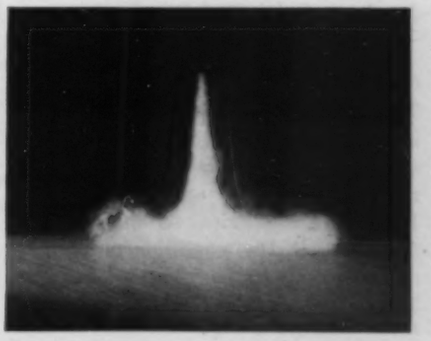
Heat Flow Testing Device

Infra Insulation, Inc., offers two weeks free use of a specially designed heat flow testing device to test the performance of various kinds of thermal insulation, including aluminum sheets, mineral wool and other substances. The device is said to be light in weight, compact and solidly constructed. It tests for down-heat-flow, up-heat-flow and transverse-heat-flow. Operation is said to be very simple, requiring only

(*Continued on page 224*)

Hedrich-Blessing Photos





Adjustable diffusers for horizontal (top left) and vertical projection heaters (below left) give wide variety of diffusion patterns. Smoke is used in tests to check air currents

MANUFACTURERS' LITERATURE

Curtain Walls

Armco Stainless Steelox Curtain Walls. Booklet explains basic functional design of the curtain wall, and lists features of steel panel construction. Sketches show the panels used both vertically and horizontally in varied exterior treatments. Detail sections show joints at masonry walls, wall bases, windows, and plan views of spandrel and strut construction. A safe load table is included. 12 pp., illus. Armco Drainage and Metal Products, Inc., Middletown, Ohio.*

File Cabinets

Design Your Own Files With Record-Stack (Catalog SC 677). Describes a large assortment of interchangeable file cabinets for offices. Photographs show typical units, arrangements, construction features, and methods of assembly. Tables give dimensions and data on cabinets and file sections. 12 pp., illus. Remington Rand, Inc., 315 Fourth Ave., New York 10, N. Y.*

Direct Fired Heaters

Airtherm Direct Fired Heaters (Bulletin No. 802). Features of the industrial and commercial heating equipment are described and illustrated. Typical installations are shown in photographs and diagrams. Construction and operation of each of the component parts are covered. Capacity and general data tables, dimension and layout diagrams, and typical specifications are included. 16 pp., illus. Airtherm Manufacturing Co., 747 S. Spring Ave., St. Louis 10, Mo.

Packaged Air Conditioners

To Do a Better Cooling Job (PM-79-0100). Catalog covers units in 2-, 3-, 5-, 7½- and 10-hp capacities for application in offices, homes, stores, restaurants, shops, taverns, sales rooms, drafting rooms, apartments and hotel suites. Included are descriptions and illustrations of all the conditioners and a cutaway drawing showing how a packaged unit operates. Data on each model, standard ratings, rating conditions and dimensions are given. Typical floor plan sketches are included for installations inside or outside the air conditioned space and with or without ductwork. 12 pp. illus. Air Conditioning Dept., General Electric Co., Bloomfield, N. J.

Porcelain Enamel

Architectural Porcelain Enamel Data Bulletin. Describes exterior and interior applications for architectural porcelain enamel, and the forms in which it is fabricated for architectural use. Shape limitations, available surface finishes and colors, weatherability and other properties are given. The booklet indicates the use of porcelain enamel for signs and letters, panel attachment methods and curtain wall construction as well as its use in combination with other materials. 4 pp. illus. Porcelain Enamel Institute, Architectural Div., 1010 Vermont Ave. N.W., Washington 5, D. C.

Pre-Cut Houses

Town and Country Engineered Houses. Folder describes features and construction of the pre-cut houses, which can be built according to standard models or according to purchaser's plans. Items which constitute the house-package are discussed. Photographs show construction and erection methods, and finished exterior and interior views. 4 pp., illus. Texas Housing Co., 9001 Denton Drive, Dallas 9, Texas.

Asphalt Paving

Bitumuls Paving Handbook. Covers aspects of paving techniques with emulsified asphalt and with other types of bituminous binders. Also included are data on compounded asphalts for flooring, tennis courts, protective coatings, adhesives and waterproofing. Many charts, graphs and specification tables are given. Photographs show typical uses. 78 pp., illus. American Bitumuls Co., 200 Bush St., San Francisco, Calif.

Ornamental Ironwork

Catalog of Ornamental Ironwork. Presents a large variety of cast iron and wrought iron grillwork, mostly adapted from old New Orleans patterns. Details are given of each design, along with size and weight tables. Photographs show typical installations as grills, gates, pilasters, railings, fences, etc. Information is included on ordering special designs. 44 pp., illus. Lorio Iron Works, 744 S. Gayoso St., New Orleans, La.

Hospital Equipment

Recommended Ohio Chemical Equipment For Elements of the General Hospital. Booklet contains suggested layouts and equipment lists for 18 types of hospital rooms, including laboratories, examination and treatment rooms, operating rooms, utility rooms, etc. Items of equipment available, for each type of room, from Ohio Chemical are illustrated. Technical specifications for the equipment are included. 28 pp., illus. Ohio Chemical & Surgical Equipment Co., Div. of Air Reduction Co., Inc., 1400 E. Washington Ave., Madison 10, Wis.*

Plastic Fabrics

Lumite Woven Fabrics. Booklet describes various qualities and uses of plastic insect screening, decorative and upholstery fabrics, and specialty fabrics. General and physical properties of the materials are covered. Methods of fabrication, cutting, sewing and edge sealing are also included, along with strength, yield and size tables. 22 pp. Lumite Div., Chicopee Mfg. Corp., 40 Worth St., New York 13, N. Y.

Schools

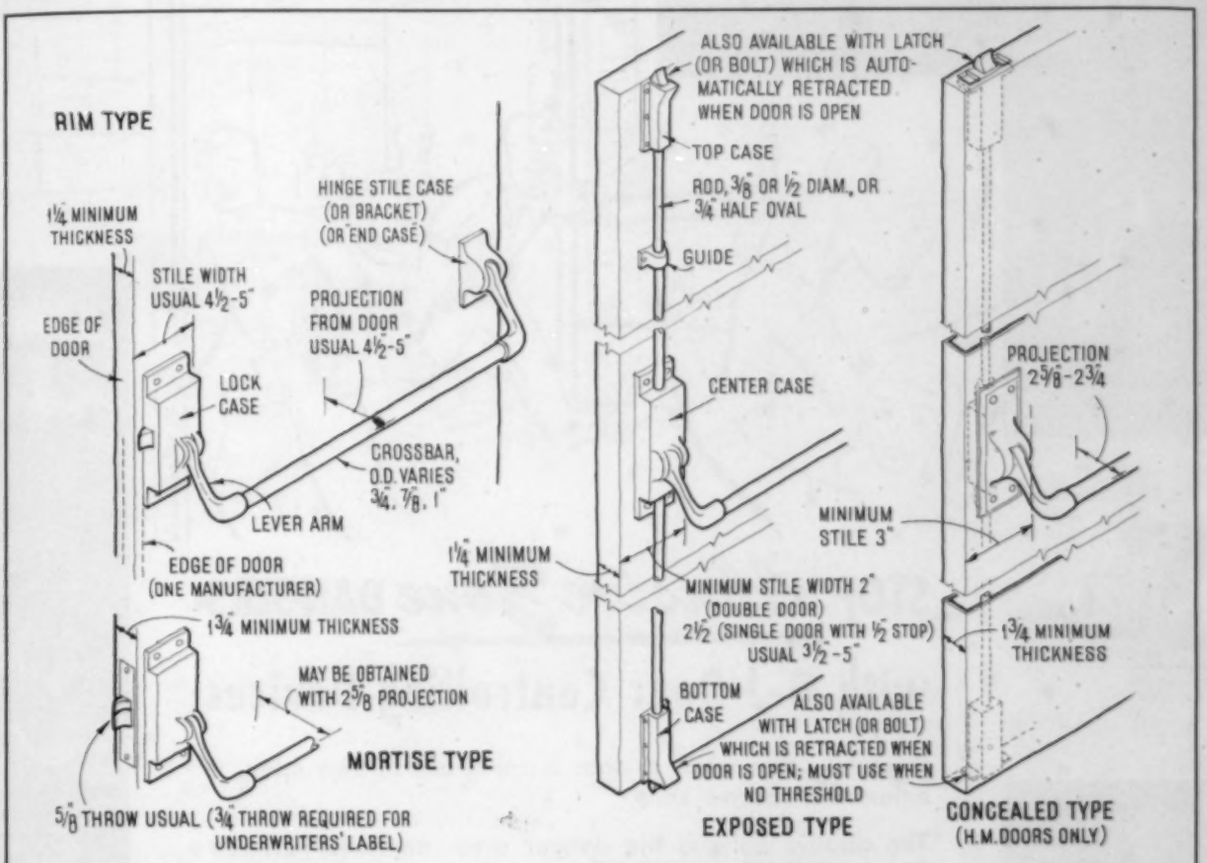
Today's Better Schools Are Built of Wood. Brochure presents features of the use of wood for school buildings. Several one-story types are illustrated. Renderings depict features discussed, construction, and four general layouts. Items

(Continued on page 244)

** Other product information in Sweet's File, 1950.*

HARDWARE—16: Panic Exit Mechanisms

By Seymour Howard, Architect, Instructor at Pratt Institute,
with the cooperation of the American Society of Architectural Hardware Consultants

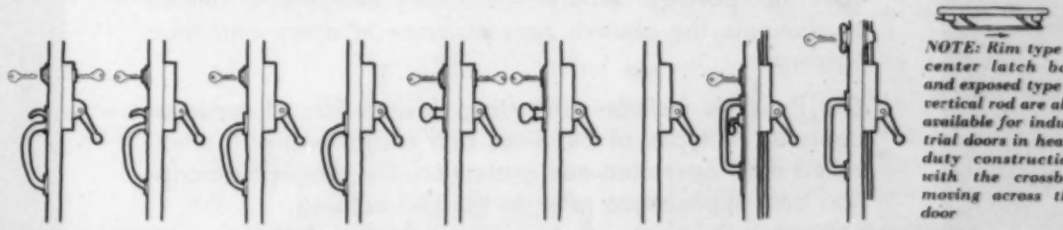

RIM TYPE
1¼ MINIMUM THICKNESS
STILE WIDTH USUAL 4½-5"
EDGE OF DOOR
HINGE STILE CASE (OR BRACKET) (OR END CASE)
PROJECTION FROM DOOR USUAL 4½-5"
LOCK CASE
CROSSBAR, O.D. VARIES ¾, ⅞, 1"
LEVER ARM
EDGE OF DOOR (ONE MANUFACTURER)
1¾ MINIMUM THICKNESS
MAY BE OBTAINED WITH 2⅝ PROJECTION
MORTISE TYPE
⅝ THROW USUAL (¾ THROW REQUIRED FOR UNDERWRITERS' LABEL)
ALSO AVAILABLE WITH LATCH (OR BOLT) WHICH IS AUTOMATICALLY RETRACTED WHEN DOOR IS OPEN
TOP CASE
ROD, ⅜" OR ½" DIAM., OR ¾" HALF OVAL
GUIDE
CENTER CASE
1¼ MINIMUM THICKNESS
MINIMUM STILE WIDTH 2" (DOUBLE DOOR) 2½ (SINGLE DOOR WITH ½" STOP) USUAL 3½-5"
BOTTOM CASE
ALSO AVAILABLE WITH LATCH (OR BOLT) WHICH IS RETRACTED WHEN DOOR IS OPEN; MUST USE WHEN NO THRESHOLD
EXPOSED TYPE
PROJECTION 2⅝-2¾
MINIMUM STILE 3"
1¾ MINIMUM THICKNESS
CONCEALED TYPE (H.M. DOORS ONLY)

CENTER LATCH BOLT TYPES

Used for: (1) single door
(2) active door of a pair (standard for underwriters' labeled fire door)
(3) both doors of a pair with mullion (removable or fixed)

VERTICAL ROD TYPES

Used for: (1) inactive door of a pair (standard for underwriters' labeled fire door)
(2) both doors of a pair
(3) single door (reduces chances of warping or springing)



OUTSIDE KEY RETRACTS LATCH BOLT; INSIDE KEY SETS THUMB PIECE	KEY SETS THUMB PIECE	KEY RETRACTS LATCH BOLT	PULL FROM OUTSIDE WHEN CROSS-BAR IS DOGGED	OUTSIDE KEY RETRACTS LATCH BOLT, INSIDE KEY SETS KNOB	OUTSIDE KEY SETS KNOB	EXIT ONLY (TYPICAL FOR INACTIVE DOOR OF PAIR)	KEY SETS LEVER	WINGED LEVERS ON CYLINDER LOCK OPERATE VERTICAL RODS ONLY WHEN KEY IS IN LOCK
C.L. ONLY	C.L. ONLY	C.L. ONLY	C.L. & V.R.	C.L. ONLY	C.L. & V.R.	C.L. & V.R.	V.R. ONLY	V.R. ONLY

NOTE: Rim type of center latch bolt and exposed type of vertical rod are also available for industrial doors in heavy duty construction with the crossbar moving across the door

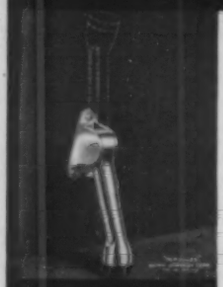
TYPICAL FUNCTION AND TRIM ARRANGEMENTS (ALL TYPES)

Note: Crossbar can be dogged down with latch in retracted position, permitting door to be used push and pull. (Dogging not allowed on underwriters' labeled doors)

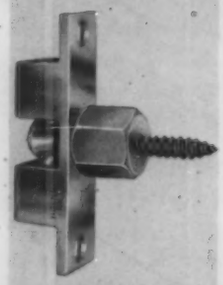
MECHANISMS vary with manufacturer and cost. Latches are pivoted type, usually retracted by cam and spring action, though some are made with lever arm acting directly on latch. With vertical rod operation, either pivoted type latch or sliding bolt may be used, actuated by springs, cams and gravity.

METALS: drop forged, extruded and cast brass (or bronze) or malleable iron for formed members; stainless steel or monel for pivots and pins; bars and rods extruded or rolled brass (or bronze) or steel. Tensile, strength, resilience and hardness should be checked against type of use expected.

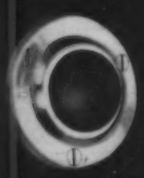
G-J 100
Concealed Overhead Door Holder



G-J No. 4
Hercules Door Holder

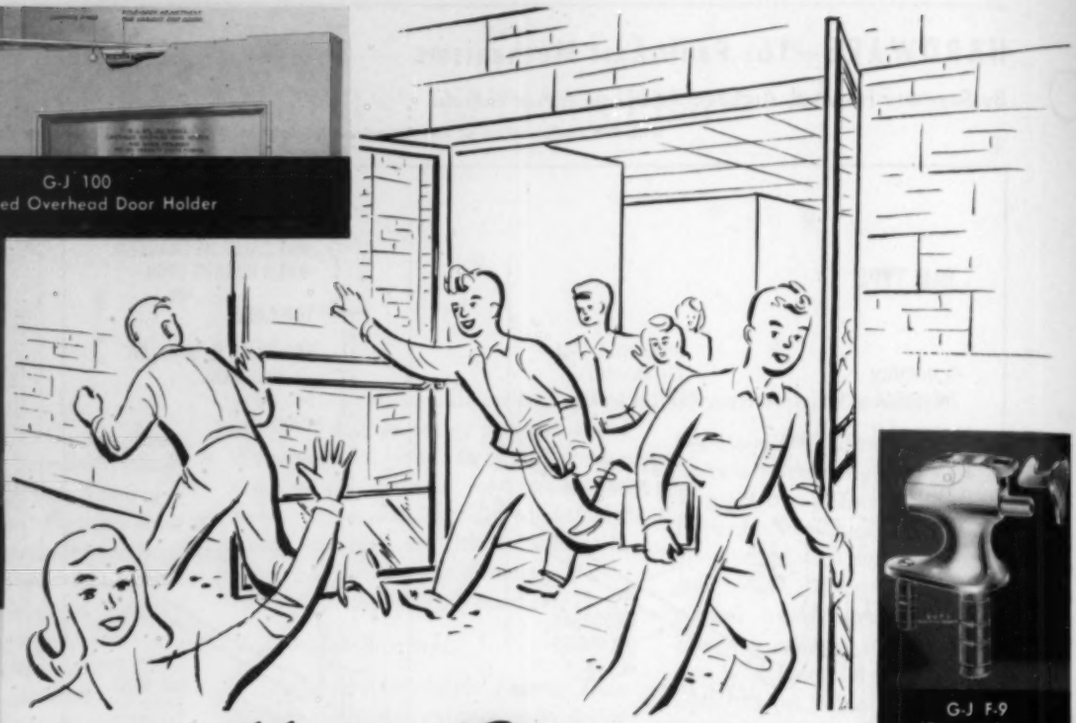


G-J 21
Flush Type
Door Holder



G-J WB-5
Wall Type
Flush Bumper

G-J FB-13
Dome Type
Door Bumper



STOP *Abusive Zone* DANGERS

with G-J Door Controlling Devices

In many cases when a door is carelessly thrown open, it enters the abusive zone.

The abusive zone is the danger area, normally between 90° and 110°, where doors and hardware receive their wear and tear. Most persons are orderly when passing through doors, but those who throw the door into the abusive zone are the cause of door problems.

For more than a quarter century G-J Door Control Devices have incorporated features specifically designed to reduce or eliminate the abusive zone damage to doors and their hardware.

G-J Products include controlling devices for all types of doors in all types of buildings and assure years of unexcelled door operation and protection. For detailed description and applications refer to the G-J catalog.

GLYNN-JOHNSON CORPORATION

4422 N. Ravenswood Avenue

Chicago 40, Illinois

G-J F-9
Door Holder
and Bumper

G-J F-40
Door Holder
and Bumper

G-J W-40
Door Holder
and Bumper

G-J F-20
Door Holder
and Bumper

G-J 90
Surface Type Overhead Door Holder

MERIT CHARACTER CORPORATION DISTINCTION

G-J 80
Overhead Door Holder and Shock Absorber

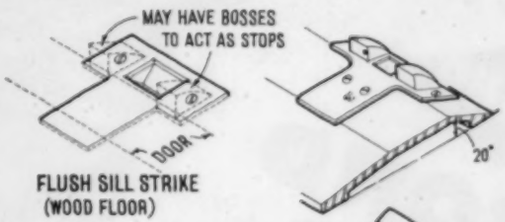
HARDWARE—17: Panic Exit Mechanisms

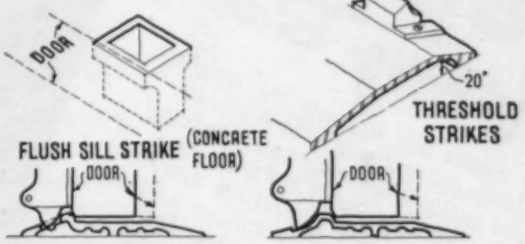
By Seymour Howard, Architect, Instructor at Pratt Institute,
with the cooperation of the American Society of Architectural Hardware Consultants

LIP MAY BE OMITTED
STOP
DOOR
FOR RIM LATCH
ROLLER STRIKE FOR RIM LATCH
CLOSED BACK STRIKE FOR MORTISE LATCH
STRIKE FOR RIM LATCH FOR PAIR OF DOORS
OPEN BACK STRIKE FOR PAIR OF DOORS (MORTISE LATCH)

STRIKES FOR CENTER LATCHING (AND LOCKING) TYPES

Electric release strikes also available





SILL AND THRESHOLD STRIKES

STOP
PROJECTING ANGLE STRIKE
ANGLE STRIKE
PROJECTING FLANGE USED ONLY WITH LATCH (BOLT) RETRACTING DEVICE
FLAT STRIKE (FOR CONCEALED TYPES)

SOFFIT STRIKES

TYPICAL PADDLE

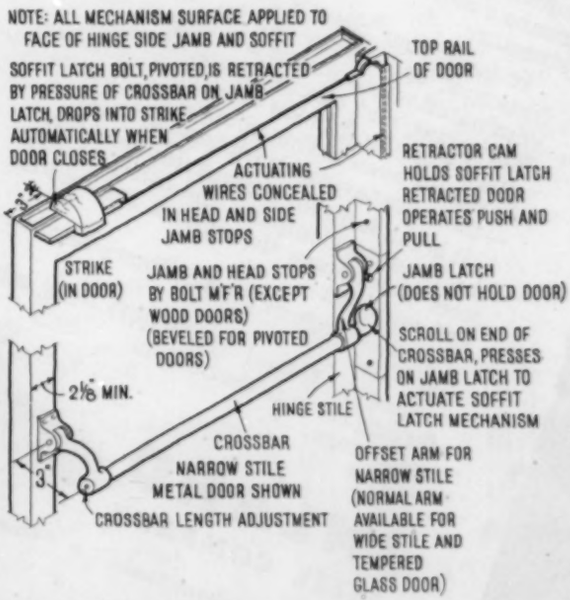
May be used instead of crossbar if approved by code and local inspectors

TYPICAL REMOVABLE MULLIONS

Provides single door operation for pairs of doors, and double door opening for moving furniture and equipment. Also available as 2⅜ in. OD pipe mullion

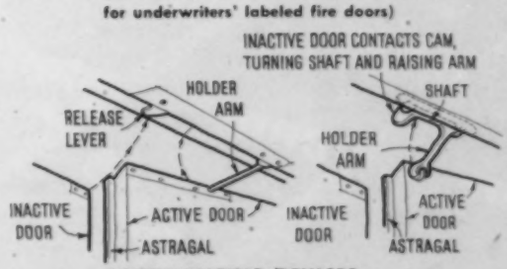
COMPENSATING ASTRAGAL DEVICE

For fastening astragals on double doors, using two vertical rod combination (for accident prevention only; overlapping astragal required for underwriters' labeled fire doors)


NOTE: ALL MECHANISM SURFACE APPLIED TO FACE OF HINGE SIDE JAMB AND SOFFIT
SOFFIT LATCH BOLT, PIVOTED, IS RETRACTED BY PRESSURE OF CROSSBAR ON JAMB LATCH, DROPS INTO STRIKE AUTOMATICALLY WHEN DOOR CLOSES
TOP RAIL OF DOOR
ACTUATING WIRES CONCEALED IN HEAD AND SIDE JAMB STOPS
RETRACTOR CAM HOLDS SOFFIT LATCH RETRACTED DOOR OPERATES PUSH AND PULL
STRIKE (IN DOOR)
JAMB AND HEAD STOPS BY BOLT MF'R (EXCEPT WOOD DOORS) (BEVELED FOR PIVOTED DOORS)
JAMB LATCH (DOES NOT HOLD DOOR)
SCROLL ON END OF CROSSBAR, PRESSES ON JAMB LATCH TO ACTUATE SOFFIT LATCH MECHANISM
2⅛" MIN.
HINGE STILE
CROSSBAR
NARROW STILE METAL DOOR SHOWN
OFFSET ARM FOR NARROW STILE (NORMAL ARM AVAILABLE FOR WIDE STILE AND TEMPERED GLASS DOOR)
CROSSBAR LENGTH ADJUSTMENT

PANIC EXIT HARDWARE WITHOUT VERTICAL RODS OR CENTER LATCH

Used chiefly on tempered glass doors, narrow stile metal doors (or kalamein door) and wood doors. Cylinder lock available for operating jamb latch from exterior. Minimum jamb thickness to accommodate lock 1¾ in.



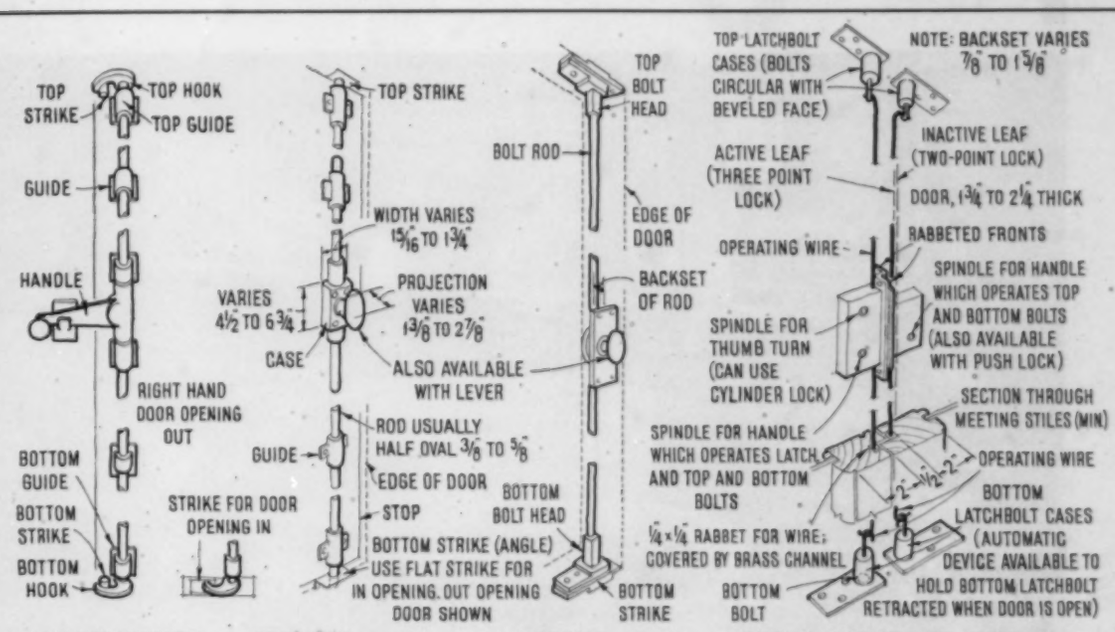
COORDINATING DEVICES

Assure closing of inactive door before active door when overlapping astragal is used

This is an
INLAND
HI-BOND
Reinforcing Bar
It not only meets but exceeds the minimum standards set up by ASTM A305-49. Its proper ratio of bearing to shearing area provides greater bond between the steel and concrete thus providing more efficient transfer of stress at splices and reducing the size of tension cracks. This means a more efficient and better looking structure.
It saves your client's money. In many instances, end hooks can be completely eliminated which means a saving in steel, fabricating and placing costs. Because a single wire loop holds HI-BOND firmly in place—even during pouring of concrete—there are savings in wire and tying time.
It is available for prompt shipment from the Ryerson Company and other leading steel warehouses throughout the middle and far west.
It costs no more than ordinary reinforcing bars!
Specify Inland HI-BOND—the reinforcing bar with the built-in anchorage.
INLAND
STEEL COMPANY
38 South Dearborn Street • Chicago 3, Ill.

HARDWARE—18: Door Bolts

By Seymour Howard, Architect, Instructor at Pratt Institute,
with the cooperation of the American Society of Architectural Hardware Consultants


TOP STRIKE
TOP HOOK
TOP GUIDE
GUIDE
HANDLE
RIGHT HAND DOOR OPENING OUT
BOTTOM GUIDE
BOTTOM STRIKE
BOTTOM HOOK
STRIKE FOR DOOR OPENING IN
TOP STRIKE
WIDTH VARIES 15/16" TO 1 3/4"
VARIES 4 1/2" TO 6 3/4"
PROJECTION VARIES 1 3/8" TO 2 7/8"
CASE
ALSO AVAILABLE WITH LEVER
GUIDE
ROD USUALLY HALF OVAL 3/8" TO 5/8"
EDGE OF DOOR
STOP
BOTTOM STRIKE (ANGLE)
USE FLAT STRIKE FOR IN OPENING. OUT OPENING DOOR SHOWN
TOP BOLT HEAD
BOLT ROD
EDGE OF DOOR
BACKSET OF ROD
BOTTOM BOLT HEAD
BOTTOM STRIKE
TOP LATCHBOLT CASES (BOLTS CIRCULAR WITH BEVELED FACE)
NOTE: BACKSET VARIES 7/8" TO 1 5/8"
INACTIVE LEAF (TWO-POINT LOCK)
ACTIVE LEAF (THREE POINT LOCK)
DOOR, 1 3/4" TO 2 1/4" THICK
OPERATING WIRE
RABBETED FRONTS
SPINDLE FOR HANDLE WHICH OPERATES TOP AND BOTTOM BOLTS (ALSO AVAILABLE WITH PUSH LOCK)
SPINDLE FOR THUMB TURN (CAN USE CYLINDER LOCK)
SECTION THROUGH MEETING STILES (MIN)
SPINDLE FOR HANDLE WHICH OPERATES LATCH AND TOP AND BOTTOM BOLTS
OPERATING WIRE
2" 1 1/2" 2"
BOTTOM LATCHBOLT CASES (AUTOMATIC DEVICE AVAILABLE TO HOLD BOTTOM LATCHBOLT RETRACTED WHEN DOOR IS OPEN)
1/4" x 1/4" RABBET FOR WIRE: COVERED BY BRASS CHANNEL
BOTTOM BOLT

ESPAGNOLETTE

For doors opening in or out; operated from inside only

CREMONE

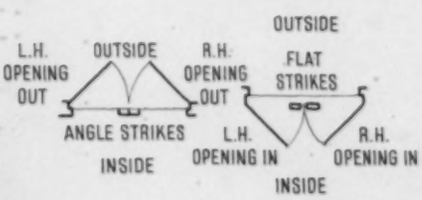
For doors opening in or out; usually operated from inside only, but can be obtained with knob on outside as well

MORTISE DOUBLE EXTENSION

For doors opening in or out; operated from inside only

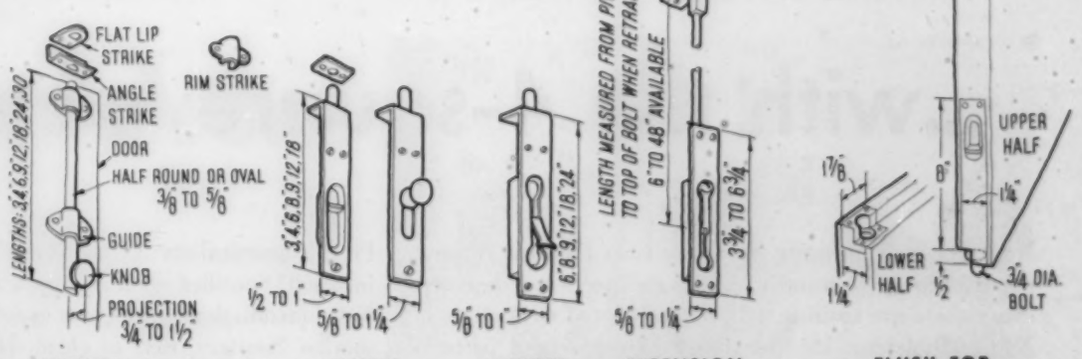
SPECIAL CONCEALED TYPE

For doors opening in or out, operated from either or both sides. Three-point lock (latch) shown on active leaf can be used on single door (bevel front). Also available with convex front and two-point lock for french astragal. Any type trim and cylinder lock can be used



"HAND" CONVENTIONS, ESPAGNOLETTE AND CREMONE BOLTS

Note: for double doors, inactive (standing) leaf may be held by rabbet or by french astragal on active leaf, or have its own bolts



SURFACE

Also available with guide concealed in width of ½ in. half round rod

FLUSH

LEVER FLUSH

EXTENSION FLUSH

Can be set in edge of inactive door of a pair. Also available for application on face of stile, with knob (see double extension bolt)

FLUSH FOR DUTCH DOOR

Both upper and lower halves must be opened to operate bolt

Note: Check availability of sizes and exact details with manufacturers

put 'em on the

1. This beautiful floor installation in the Colonial Hou... Candy Shop, East Orange, New Jersey, sho... ...w easil... ...sign . . .

...with the 4-square features o...

No other floor covering gives you such limitless creative opportunities. No wonder leading architects and designers everywhere are again turning to the proved advantages of Nairn Linoleum. Its wide range of colors and patterns harmonizes with any decorative scheme . . . offers complete flexibility for your designs and your clients' requirements.

From a practical standpoint, Nairn's service record speaks for itself! Specified again and again by the same customers, Nairn installations have given over 30 years of economical service. Sanitary, easy to clean, crevice-free Nairn Linoleum is foot-easy and quietizing. No other material gives you and your clients *more* value for your flooring dollar!

For your specifications: Nairn Linoleum – Nairn Wall Linoleum – Nairn Asphalt Tile. Congoleum-Nairn Inc., Kearny, New Jersey

NAIRN LINOLEUM

Trademark ®

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right footing

w easily Nairn Linoleum follows the architect's sign . . . creates a distinctively beautiful effect.

2. Nairn Linoleum makes this floor in the Hackensack General Hospital, Hackensack, New Jersey, quiet and foot-easy . . . satin-smooth surface eliminates dirt- and germ-catching crevices.

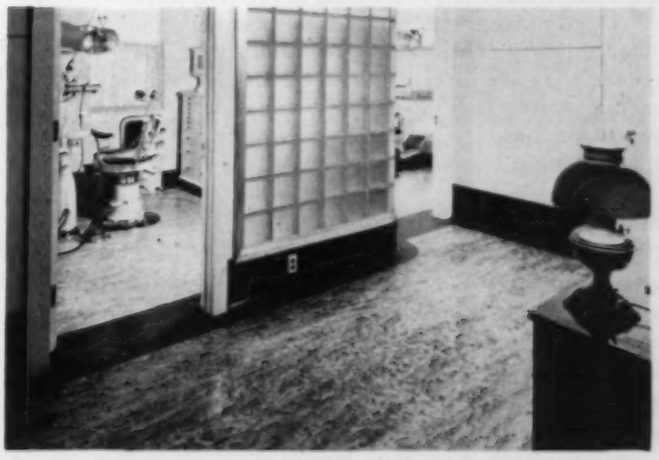
3. A corridor in the same hospital showing an installation of battleship linoleum now in use over thirty years! Proved long life where traffic is heavy . . . always clean and sanitary.

o Nairn Linoleum!

NAIRN
SATISFACTION GUARANTEED OR YOUR MONEY BACK

1. Long Life
2. Enduring Beauty
3. Easy Maintenance
4. True Resilience

For FLOORS and WALLS



4. An interior of the suite of Dr. J. D. Ross, Arlington, New Jersey, shows how Nairn Linoleum with one-piece cove base and border insures cleanliness, easy maintenance, enduring beauty.

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thank you THREE times for
choosing WOOD window units

they'll thank you for...

MORE COMFORT. Homeowners and apartment tenants who appreciate comfort will thank you for specifying weathertight wood window units. In these windows, precision construction joins with the natural insulating qualities of wood to provide lasting protection from heat, cold, wind and dust. Wood windows, too, discourage the annoying condensation that causes water spots and extra "mop up" work.

they'll thank you for...

SUPERIOR BEAUTY. Available as pre-assembled units with modern sash balances and weather stripping, wood windows come in *many* beautiful styles, both double hung and casement, with the slender mullions and wide glass areas that modern taste demands. Wood windows, too, with their satin-smooth surfaces, take any finish beautifully.

they'll thank you for...

LOW MAINTENANCE. Wood windows today give lifetime service. Chemically treated, they resist stain, decay, insect attack or humidity . . . never rust or corrode . . . hold paint or other finishes with a firm grip. On every count, wood windows provide more value!

WOOD WINDOW INFORMATION SERVICE
38 South Dearborn Street, Chicago 3, Illinois

SEE YOUR LOCAL LUMBER DEALER FOR WOOD WINDOW UNITS

THE RECORD REPORTS

WASHINGTON

(*Continued from page 24*)

this new bill and was gaining administrative powers rapidly otherwise. It was on order from NSRB officials that the Veterans Administration architectural division stopped work on plans for certain VA hospitals in the current construction program. Those being designed for Washington, D. C., Cleveland and San Francisco were immediately affected. The Office of War Mobilization, within NSRB, was said to have prompted the interruption of plans while a decision was being made on replanning new veterans' hospitals to make them bombproof.

The revision of plans and specifications in the light of this order would mean vast additional expenditures. But VA said it had the money. One source indicated it would cost 20 to 30 per cent more to make a hospital A-bomb resistant. Applied to the 500-bed structure to be built in Washington, this would increase the cost from around $6 million to approximately $8 million. Chief architectural changes were likely to be the absence of glass in windows with a complete heat, light and air conditioning system. It was not believed that underground construction would be given serious consideration because of problems in ventilating subterranean structures. And only a minimum defense against radioactivity in the event of an A-bomb explosion would be possible for such underground installations.

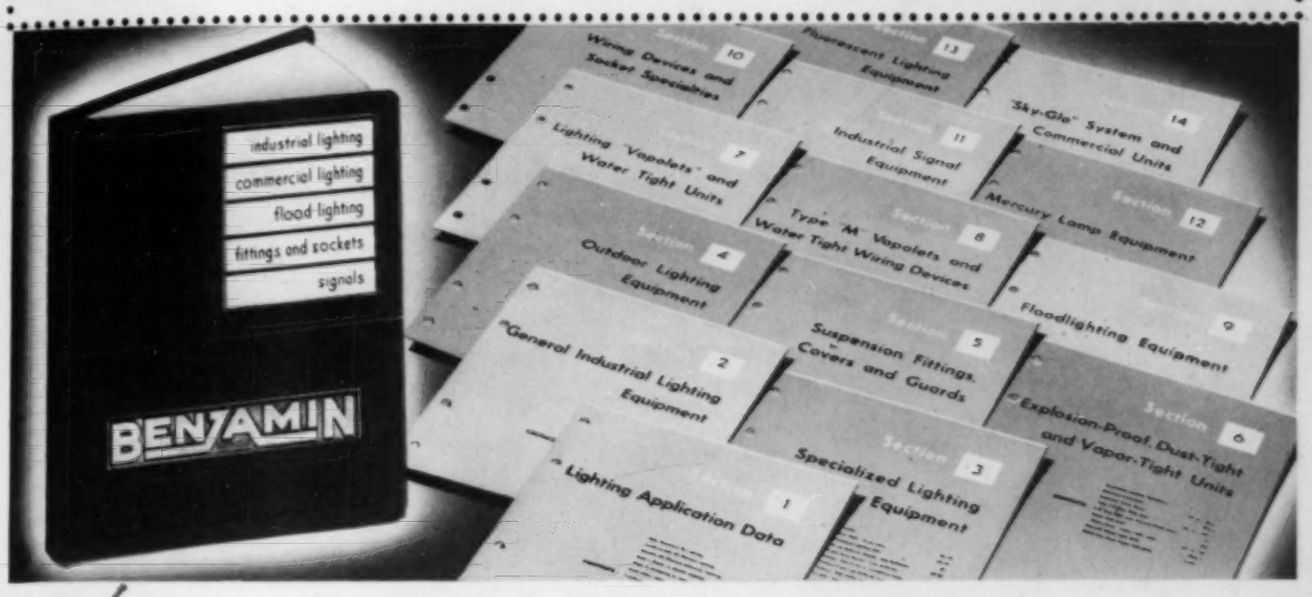
At mid-year, VA had completed 19 projects in the program and had 47 others in progress. Construction contracts had been awarded on 37 of these; design work was done on two others, but no contracts yet awarded. Design was still in progress — or suspended under the NSRB order — on six and awaiting a start on two projects.

Shorts

• The technical department of N.A.H.B. is preparing a typical plan for off-site production of housing units in the event this type of housing should be necessary in the national emergency. Basic factor in the plan is the prefabrication of materials in small housing plants which could be set up quickly and economically by a large percentage of the association's

(*Continued on page 170*)

GOING FAST!



the NEW

BENJAMIN CATALOG REPRINT

For architects . . . engineers . . . electrical contractors and others having repeated need for lighting equipment data.

The Benjamin Catalog is generally accepted as the most complete and authoritative presentation of industrial and commercial lighting equipment. As the leading source of information, the demand for copies has long exceeded the supply. The expense of production of a book of this magnitude has of necessity limited the number printed. Further to those who recommend, plan or specify lighting equipment, the new reprint contains much additional information of extreme value, such as:

- **An Entirely New 32-Page Section 1 on Lighting Equipment Application.**

New specification data and listings of all **New Benjamin Lighting Equipment Advancements** such as:

- **"Sky-Glo" Luminous Louvered Ceilings.**
- **"Magna-Flo 75" Fluorescent** (for new 96" lamps)
- **"Vapor-Tite", "Sealed-Flo 40"** and TX Units for damp and dusty location lighting.
- **Recessed Mounted Fluorescent Units.**
- **"Shield-Flo" Fluorescent.**
- **"Spring-Lox" Lampholders.**

DISTRIBUTION of the new 424-page catalog reprint has been in progress since last January. You may have received your copy upon the request of a Benjamin Representative or Distributor. However, if you did not receive it as yet, may we restate our previous announcement: "Benjamin wants everyone who has repeated and continuous use for the catalog to have one without cost or obligation of any kind. Distribution is restricted solely to insure such persons obtaining their copy."

Further, we are most anxious that such persons SECURE THEIR COPIES IMMEDIATELY to avoid disappointment through the exhaustion of our limited supply. *To insure your obtaining your copy, please send in the coupon immediately, attached to your company letterhead. To avoid disappointment, do it today!*

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 168*)

members. Builders now using on-site methods could convert quickly into the use of jigs, power tools and a miniature production line when, as and if the government required conventional prefabricated units, "shell" houses, or any type of housing produced in one area for use in another. . . . The NSRB has been talking for some time about "mobile" housing. This implies substantial quantities of knockdown housing, components partially assembled that could be stored at strategic locations throughout the country for quick movement to nearby areas.

• C. B. Sweet, president of the National Retail Lumber Dealers Association, estimated there would be enough building materials available to complete homes and other buildings now under construction without undue delay. This should be true, he predicted, even though the supply of steel and certain other building products will be curtailed. He promised that materials dealers would meet the demand to the best of their ability and would make every effort to see that available supplies go through normal trade channels to legitimate users.

• Robert P. Gerholz, president of the National Association of Real Estate Boards, urged the use of already available powers and those pending under the new defense production bill to control building materials supplies. He objected to that part of the measure proposing a licensing system for real estate operators. No such measure was authorized in World War II, he said, and could not be justified now.

• President Truman called on 14 departments and agencies to review, and curtail where possible, their civil works construction programs. As a result the Army Corps of Engineers went over its current and planned construction schedule with Budget Bureau personnel to see where cuts could be made. President Truman said he made the move to lessen the demand upon services, commodities, raw materials, manpower and facilities in competition with national defense ef-

(*Continued on page 172*)

Welded Design is the Key to Cutting Structural Weight and Cost

School gymnasium, 82' x 120', at Wright City, Oklahoma. Designed by David R. Graham, Tulsa, Oklahoma. Has clear, unobstructed view from everywhere. Note simple, compact roof construction.

By DAVID R. GRAHAM
Consulting Engineer
Tulsa, Oklahoma

THE limited budgets of small communities for gymnasiums, field houses and similar structures can be met simply through the use of arc welded construction. By designing the framework as a solid, continuous unit, it is possible to use lighter structural members, eliminate rivets, butt and corner plates and so cut steel requirements as much as 30%.

With welded design, the structural engineer can take full advantage of longer spans, greater ceiling clearance and less obstruction than possible with riveted or bolted construction. These benefits, of course, mean higher availability of useful space at lower cost. These buildings are simpler to light and easier to clean.

In the past, our work has been devoted to architectural engineering involving both riveted and welded designs and the decision on riveted or welded design was left up to the engineer. In recent years, however, it is significant to note that clients familiar with both types of structural design now specify welded construction.

School gymnasium, 72' x 120', at Tulsa, Oklahoma. Has exceptional ceiling clearance made possible by rigid-frame design.

GET THE FACTS

Write for Studies in Structural Arc Welding
THE LINCOLN ELECTRIC COMPANY
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Sales Offices and Field Service Shops in All Principal Cities

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BOTH SIDES of the

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"Folding-Flue" Windows

clean from the INSIDE!

Other SEALUXE-BROWNE values . .

- 100% controllable, draft-free ventilation. When slightly bowed, a vertical V-flue lets fresh air in and foul air out without drafts.
- Force fit against resilient wool felt shuts out dirt, dust, wind, water and traffic noises. Laboratory tested.
- Stream-lined to let in more light; set off any architectural treatment.
- Fold at finger-tip pressure. Stay put under normal wind pressure.
- No metal-to-masonry contact. Resist tarnish, rust and corrosion.

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BROWNE Windows throughout. SEALUXE—Engineered Spandrels. Heavy, extruded aluminum SEALUXE Pilasters conceal air conditioning ducts, water and gas pipes and electrical conduits.

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 170*)

forts. He excepted only those projects which directly contribute to meeting defense and international responsibilities.

• The Farmers Home Administration took its move along with federal housing agencies to restrict mortgage credit. Farm building loans were restricted to those whose total, plus any other farm indebtedness, does not exceed 95 per cent of the appraised value of the farm. Previously, a borrower's real estate debt could go as high as 100 per cent of the value of the farm.

• The veterans' preference provisions in law are retained in the Housing and Rent Act of 1950. Builders have been advised by the Office of the Housing Expediter that the regulations pertaining to this preference remain in effect until June 30, 1951. New rental and sale housing is covered, as are some types of converted quarters. Signs on the property must indicate compliance. Veterans of World War II and their families are given first chance in purchase or rental of accommodations completed since June 30, 1947. Projects must be held 30 days after completion for veterans.

• The site acquisition and planning program of the General Services Administration moved forward with announcement of 19 new post office construction projects in 15 states. Sites will be acquired and drawings and specifications prepared. No actual construction is involved, however. The idea is to have plans ready when Congress appropriates building funds at a later date. This fourth list in the program now brings to 510 the number of projects so designated. Subsequent announcements will raise the total to 575, the number authorized in Public Law 105, enacted by the last session of Congress. Federal buildings costing an estimated $337 million are affected by the site-acquisition and planning program. Congress has earmarked $40 million for this part of the work. For the most part, it is post offices that are being planned.

(*Continued on page 174*)

NEW 60-HOUSE HARPER VILLAGE FEATURES HEATILATOR FIREPLACES

Architect Herold Bradley combines good design and careful detailing in his new 60-house village in suburban Pittsburgh. Two-story houses, each with garage and features such as Heatilator* Fireplaces, sell for only $13,850—an attractive price made possible by cutting costs to $10 a sq. ft.

Architect Bradley reports quick sales!

Home hunters came to look . . . stayed on to live. Architect Bradley gives a lot of credit for the quick sale of his 60 houses to the genuine Heatilator units he specified for each fireplace. "They won't smoke," he says, "they circulate heat, and they add little to the cost of the fireplace."

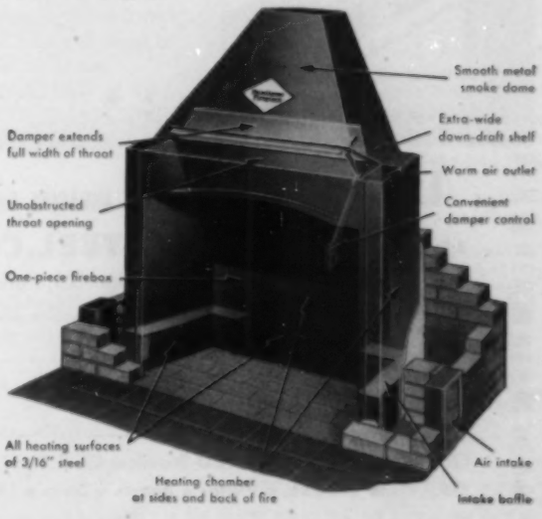
Smokeless . . . Troublefree! Design any kind of fireplace around the Heatilator unit . . . and be sure of smokeless, troublefree results. It's a scientifically designed heavy-duty steel form with just the right proportions between hearth and flue openings to assure correct operation.

Saves material and labor! Your Heatilator unit adds little or nothing to the cost of the finished fireplace. It provides all the vital parts of the fireplace—saves the cost of a separate damper, firebrick and masonry otherwise required—and on most jobs, reduces time and labor.

Cuts furnace operation. A Heatilator fireplace draws in air from floor level, heats it, and circulates it to every corner of the room. It makes furnace operation unnecessary on cool Spring and Fall days. In mild climates, it is the only heating equipment needed. Ideal for camps, cabins and basement recreation rooms. Warm-air outlet grilles are easily placed to blend with any design.

Proved for 23 years. Perfected over 23 years ago, the Heatilator Fireplace is in successful use in hundreds of thousands of American homes. Write today for complete specifications and illustrations. Heatilator, Inc., 619 E. Brighton Ave., Syracuse 5, N. Y.

****Heatilator is the registered trade mark of Heatilator, Inc.***



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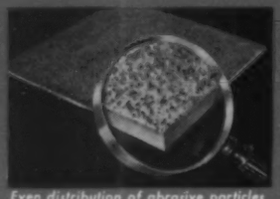
Sells Houses FASTER!

NOW! END SLIPPING ACCIDENTS WITH A.W. ALGRIP

(POSITIVE NON-SLIP FLOOR PLATE)

Non-slip—Even on Steep Inclines



Even distribution of abrasive particles shown by magnifying glass.

Prevents slipping on factory floors, walkways, etc.

Protects workmen and vehicles from slipping on ramps and loading platforms.

REVOLUTIONARY, NEW ABRASIVE ROLLED STEEL FLOOR PLATE

Now, for the first time you can prevent dangerous, expensive slipping accidents with A.W. ALGRIP ABRASIVE *Rolled Steel* Floor Plate. It's the non-slip floor plate that safety engineers, architects, purchasing agents and plant owners have always wanted.

A.W. ALGRIP is made by rolling abrasive grain as an integral part of the upper portion of *steel* plate. It retains its non-slip qualities for a lifetime, because as the surface wears new abrasive particles are constantly exposed.

Install A.W. ALGRIP for positive non-slip protection in all areas subjected to oil, grease or water on which men walk or climb . . . loading platforms, ramps, washroom floors, fire escapes, running boards and similar surfaces. A.W. ALGRIP prevents slipping even on steep inclines. And remember it's low in cost, easy to install, requires no maintenance, and is resistant to heat, fire and heavy traffic.

Write or use coupon for complete information about this amazing, new, non-slip floor plate now.

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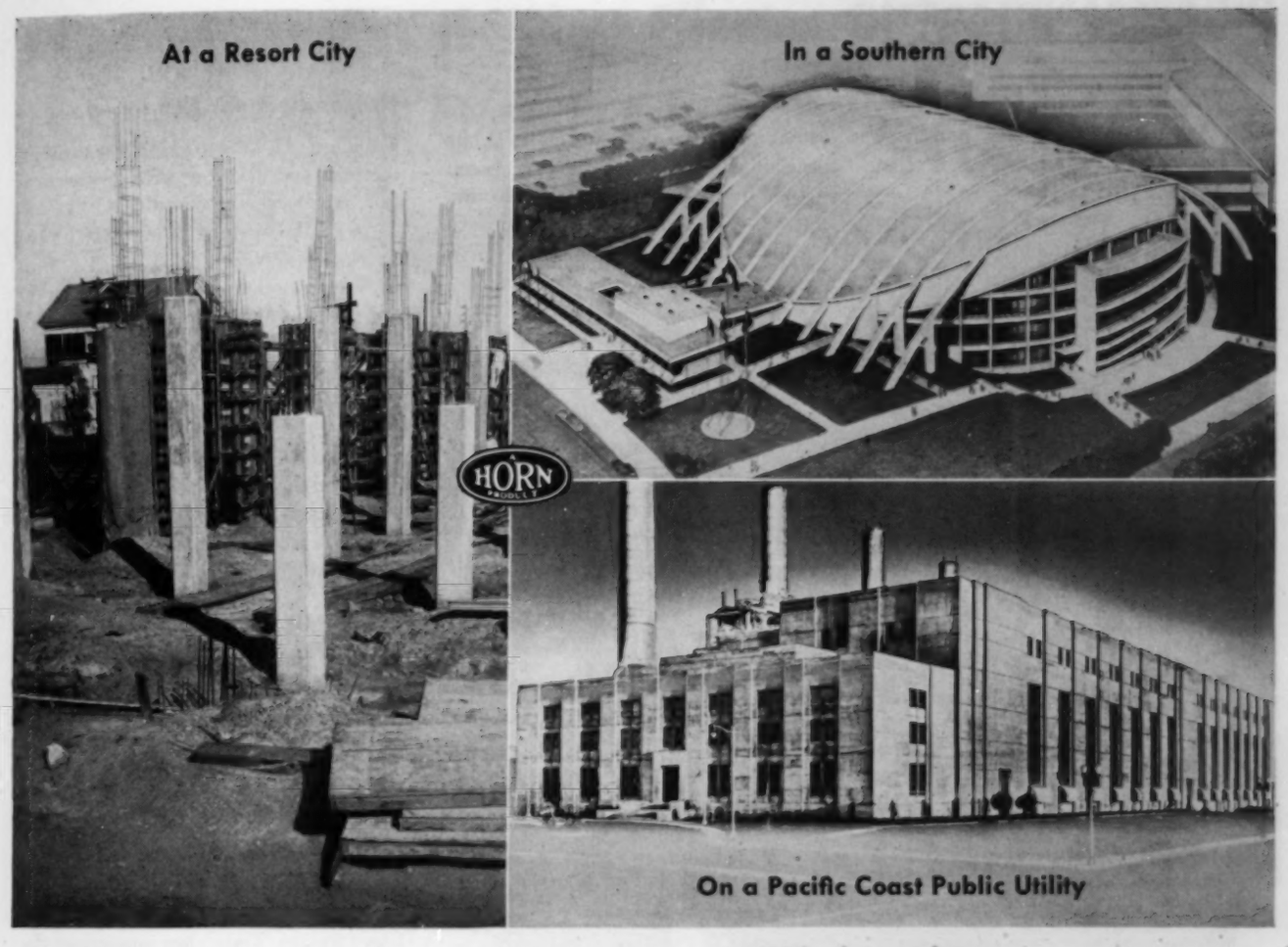

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"More re-uses of forms especially on exposed concrete work."

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COMPANY_____

ADDRESS_____

CITY_____ STATE_____

THE RECORD REPORTS

(*Continued from page 174*)

Nov. 9–11: Annual Convention, Louisiana Architects Association, and Annual Meeting, Chapter officers of the Gulf States District, The American Institute of Architects — New Orleans, La.

Nov. 12–19: 43rd Annual Convention, National Association of Real Estate Boards, and First Annual National Realtors' Exhibition — Municipal Auditorium, Miami Beach, Fla.

Nov. 22–Jan. 28: "Good Design," an exhibition of the best designs in home furnishings for the year 1950 as chosen by the Museum of Modern Art Selection Committee — The Museum of Modern Art, 11 W. 53rd St., New York City, and The Merchandise Mart, Chicago.

Nov. 27–Dec. 2: 19th National Exposition of Power and Mechanical Engineering — Grand Central Palace, New York City.

NEW MECCO ROLLING GRILLES FOR ENDURING PROTECTION AND

Economy

WHERE TO SPECIFY. For applications where plans call for areas to be restricted yet provide ventilation, light and visibility, MECCO Rolling Grilles meet all specifications. They provide a handsome pattern in sturdy protective grill work that will be more economical over the years. Equipped with manual, chain and gear, hand crank or motor operation with built-in cylinder lock or padlock construction.

HOW YOU SAVE. Only the MECCO brand gives you the years of doormaking experience engineered into these specially designed MECCO Rolling Grilles. Thus you save because you get top quality and the economy of dependable long lasting service and lower maintenance. Be sure to check MECCO wherever metal doors enter your plans.

WRITE TODAY *stating requirements and get complete details of the new MECCO Rolling Grilles.*

"MECCO" doors

ALL TYPES ROLLING DOORS
ROLLING GRILLES
ROLLING DOORS TO SPECS.
KALAMEIN FIRE DOORS
TIN IRON CLAD DOORS

THE MOESCHL-EDWARDS CORRUGATING CO., INC.
P. O. BOX 1115, CINCINNATI, OHIO

OFFICE NOTES

Offices Opened, Reopened

• Willard H. Barrows, A.I.A., architectural specification writer, specification engineer and consultant, has announced the opening of an office at 104 E. 40th St., New York City. Mr. Barrows was in charge of specifications for the United Nations headquarters buildings in New York, under the direction of Wallace K. Harrison, F.A.I.A., director of planning for the United Nations.

• William F. Bigoney Jr. has opened an office for the practice of architecture at 1926 Sunrise Blvd., Fort Lauderdale, Fla. Mr. Bigoney has been in the Fort Lauderdale office of Robert Little.

• Victor Gruen, A.I.A., senior partner in the firm of Gruen and Krummeck, has announced the opening of an office in Detroit, at 1905 Industrial Bank Bldg. Other offices of the firm are located at 8460 Santa Monica Blvd., Los Angeles 46, Calif., and 967 Sutter St., San Francisco 9, Calif.

New Firms, Firm Changes

• William Crutchfield, Architect, of Chattanooga, Tenn., has announced the association with him in the practice of architecture of William Carlton Chappell. The name of the organization will be "William Crutchfield, Architect, William Carlton Chappell, Associate." Mr. Chappell is a native of Tennessee, a graduate of Columbia University and Beaux Arts School of Design of New York, and has been in the architectural field for 23 years.

• Meyer Katzman and Joseph Roberto, Architects, of New York City, have announced the formation of a partnership to specialize in store planning and design, with offices at 10 E. 52nd St.

• Whitney R. Smith and Wayne R. Williams announce the formation of a partnership to practice architecture and planning as Smith and Williams, Architects, at 204 S. Los Robles Ave., Pasadena 5, Calif.

New Addresses

The following new addresses have been announced:

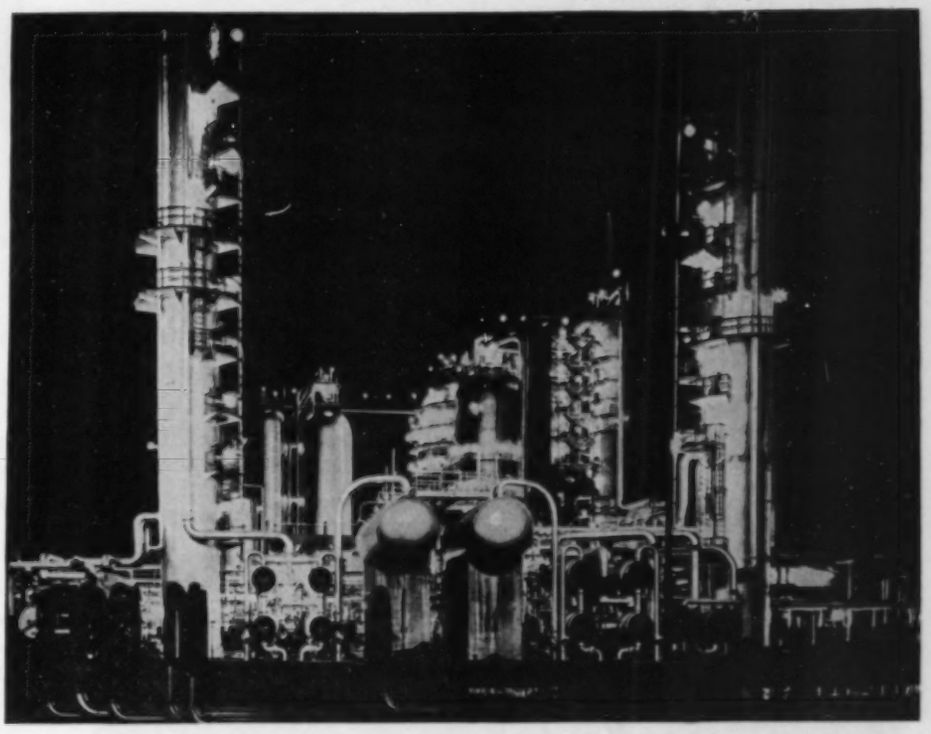
John H. Graham, A.I.A., Washington Circle Bldg., 2430 Pennsylvania Ave., N.W., Washington 7, D. C.

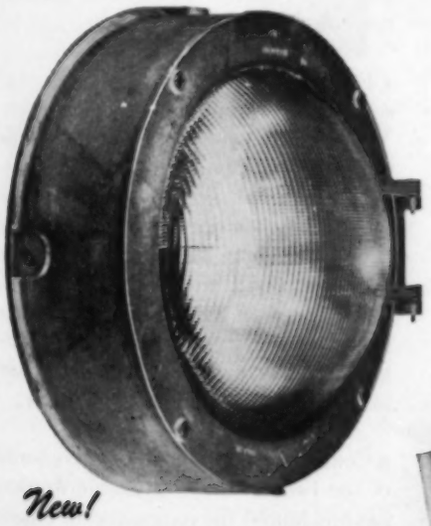
(*Continued on page 178*)

Holophane Provides the Most Effective OUTDOOR LIGHTING .... for All Production and Security Purposes

Holophane has designed a specific unit for each phase of outdoor lighting, such as:

- Airport Loading Areas
- Blast Furnaces
- Cat Walks
- Coal Conveyors
- Craneways
- Doors
- Entrances, Exits
- Fences
- Gates
- Hangar Aprons
- Oil Refineries
- Outdoor Boilers
- Outdoor Storage
- Parking Lots
- Protective Lighting
- Roadways
- Shipping Platforms
- Sub-stations
- Swimming Pools
- Underpasses



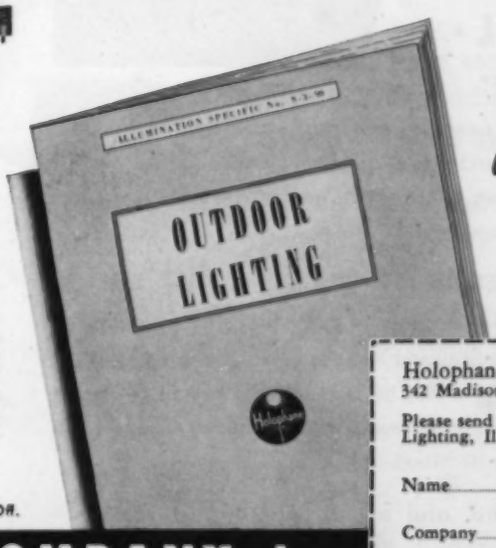


New!

1000 watt *Refractolens UNIT No. U-850.** Ideal for a wide variety of outdoor locations. May be mounted against wall or recessed. Refracts the light downward at about 65° and spreads it laterally through 180°. For uniform illumination, space about four times the height above ground. This Refractolens unit is built to withstand heat, shock and weather. Rugged cast aluminum alloy housing has hinged door for access to lamp.

*Reg. U. S. Pat. Off.

Write for the Latest Holophane Book on Outdoor Lighting . . . This important publication backed by 50 years of experience in the field, gives authoritative information and recommendations as to the units best suited for any particular application. It also includes diagrams and practical suggestions on spacing, mounting height, footcandles and other pertinent data.



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THE HOLOPHANE COMPANY, LTD., THE QUEENSWAY, TORONTO 14, ONTARIO

 (*Continued from page 176*)

Gimeon Heller, A.I.A., 38–11 Union St., Flushing, N. Y.

Joseph H. Heuer, Structural Engineer, Rms. 6 and 7, 1 S. Northwest Highway, Park Ridge, Ill.

Raymond Loewy Associates, 488 Madison Ave., New York City.

S. Lewis Santomieri, Consulting Engineer, Box D, Botkins, Ohio.

ELECTIONS APPOINTMENTS

• L. Morgan Yost has been elected president of the Chicago Chapter of The American Institute of Architects for the coming year. Other officers are: Albert F. Heino, first vice president; John F. Kausal, second vice president; Roy B. Blass, secretary; and Edward L. Burch Jr., treasurer. Norman J. Schlossman, retiring president, becomes a member of the executive committee for one year; and Ray Stuermer has been elected to a four-year term on that committee.

Carlos Photo

L. Morgan Yost, Chicago A.I.A. President

• Harold E. Bolin has been appointed assistant director in charge of the Federal Housing Administration insuring office at Spokane, Wash., FHA Commissioner Franklin D. Richards has announced. Mr. Bolin succeeds Assistant Director Charles Freese, who reaches retirement age this month.

• Edwin C. Dimling has joined the Associated Merchandising Corp. of New York as representative for store planning and store building operations, replacing Harold Dayton, who has resigned. Mr. Dimling is vice president in charge of store planning and design work at Russell W. Allen, Inc. He was formerly—from 1938–1945—with Gimbel's in Pittsburgh, first as store architect in charge of store planning and later as internal store promotion manager.

• Commissioner Franklin D. Richards of the Federal Housing Administration has announced the resignation of Folger Johnson as director of the Federal Housing Administration for the State of Oregon. Albert L. Buchner, who has been assistant director of the Portland office, has been named by Commissioner Richards to succeed Mr. Johnson.

• New York Architect Raphael Hume has been elected president of the Liturgical Arts Society. Other new officers for the coming year are: Dr. Becket Gibbs, vice president, and Lawrence L. Mitchell, assistant secretary.

(*Continued on page 180*)

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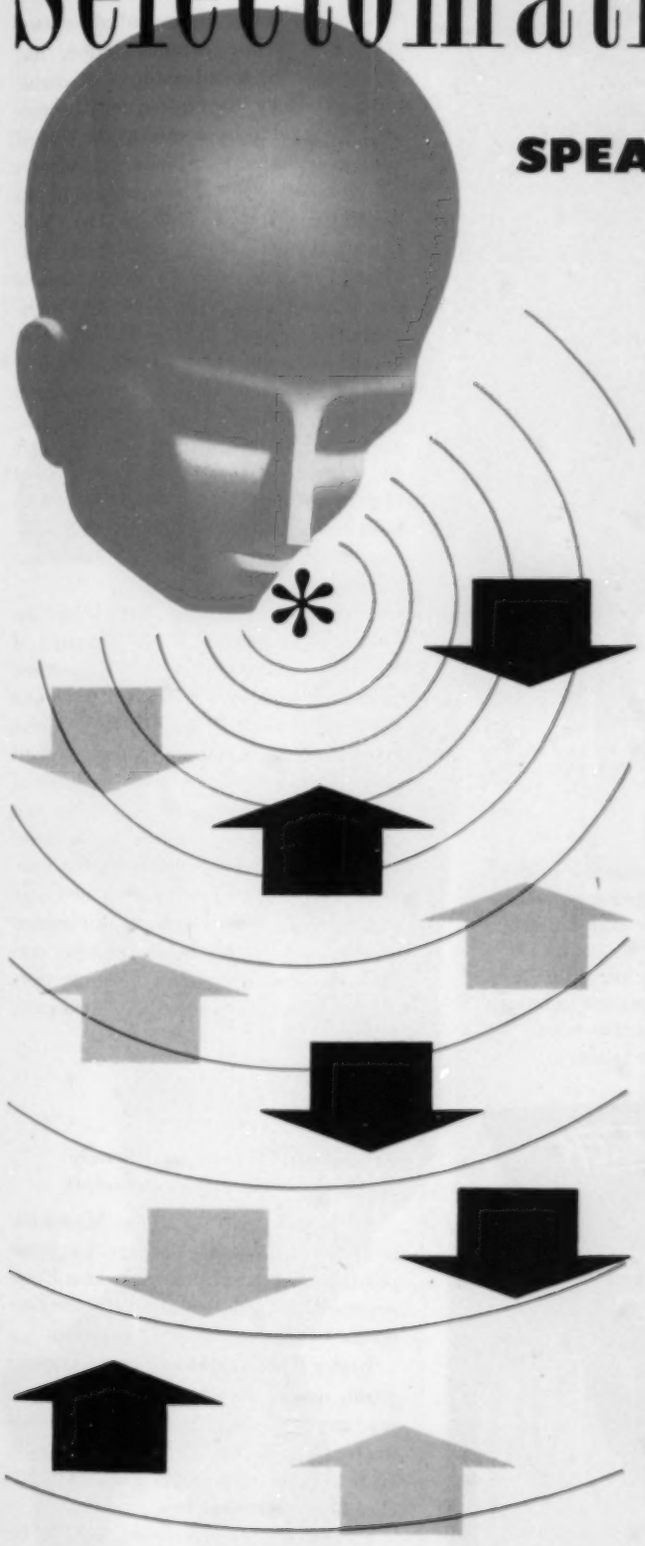

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Wherever you want the ultimate in cabinet quality, and the most in beauty and practical convenience—install the new Hall-Mack Mirro-Glide.

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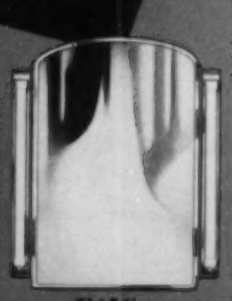

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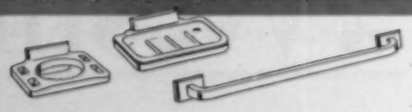

THE RECORD REPORTS

(*Continued from page 178*)

• John T. Koehler, acting administrator of the Maritime Administration, has announced the membership of an architects' advisory committee for the memorial chapel to be erected at the United States Merchant Marine Academy, Kings Point, N. Y. The members of the committee are: Douglas W. Orr, New Haven, Conn., of the Architects Advisory Committee for the Renovation of the White House, and architect for the memorial chapel at the U. S. Coast Guard Academy at New London, Conn.; Arland A. Dirlam, Boston, Mass., church designer; Daniel Merrill, New York, architectural consultant; Rev. Elbert M. Conover, New York; and Alfred Hopkins & Associates, New York, who designed all of the existing new construction at the Merchant Marine Academy.

• Following his retirement from the Corps of Engineers, E. R. Shepard of Washington, D. C., has been appointed technical associate for the Hinchman Corp. of Detroit, Vice President James Hirshfeld has announced. Mr. Shepard has had wide experience in the fields of soil corrosion, cathodic protection and geophysics, both with the National Bureau of Standards and with the Public Roads Administration and the Corps of Engineers. He is the author of numerous technical publications on stray current electrolysis, cathodic protection, corrosion mitigation and allied subjects.

AT THE COLLEGES

European Scientists Study At M.I.T. Summer Session

Advanced research at the Massachusetts Institute of Technology was made possible this summer for 36 young European scientists and engineers by the Economic Cooperation Administration.

Under ECA's technical assistance program, qualified technicians from industry, government, research centers, and universities in 12 Marshall Plan countries worked on projects which will further European recovery.

Fields of study covered by the research projects included internal combustion engines, reconstruction and town planning, communications, electronics, biochemistry, cost analysis, chemistry of synthetic rubber, and reinforced concrete.

(*Continued on page 184*)

What do the back fences say about you?

One neighbor tells another. And the architect who specified Bryant automatic gas heating always rates high in those confabs . . . continues to win more clients over the back fences, too!

Customer satisfaction is built into Bryant equipment. It's drawn in by the product designers, kept safe by the finest automatic controls, retained by the heavier construction that assures longer service life. The user is better satisfied . . . more pleased with the architect who gave him *quality* heating.

Yes, and Bryant lends a helpful hand in other ways. The Bryant distributor offers a single source for most every type of gas heating equipment. He furnishes valuable engineering assistance, maintains an adequate warehouse stock. He stands ready to work with you on every job, from single installation to large project.

If you are interested in having what's said over the back fences mean more clients for you, *keep specifying Bryant heating!*

Let the pup be furnace man
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WOLMANIZED Lumber is pressure-treated. It provides sure, lasting protection against rot and termites—lasts 3 to 5 times longer than untreated wood. It's a time-tested, service-proved building material. Besides, it's clean, odorless, non-leaching and paintable.

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1. *Where excessive ground moisture, rain or thaws cause early decay failures.*
2. *Where wood is subject to termite attacks.*
3. *Where wood touches concrete or masonry.*
4. *Where steam and vapor from industrial processes promote wood decay.*
5. *Where walls, floors, ceilings are subject to condensation from refrigeration.*
6. *Where wood is exposed to moisture in humidified buildings.*

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THE RECORD REPORTS

(*Continued from page 180*)

CCNY Course for Builders Is Scheduled for This Fall

A "Home Builders Course" designed to give young builders a professional understanding of modern cost-conscious methods as used by successful contractors and builders will be given this fall at the Midtown Business Center of the City College of New York.

All of the basic operations in construction, management and business phases of home building will be studied with a view to improving the efficiency of builders and their assistants.

The project is being conducted with the warm encouragement and advice of Emanuel Spiegel, former regional vice president of the National Association of Home Builders and current president of the New Jersey Home Builders Association.

Lecturers for the course will include three New Jersey Association leaders: John Wright, executive vice president; Richard D. Hudson, chairman of the New Jersey Association's Codes Committee; and Fred Naef.

The fall session will open October 9. Applications should be made to the Supervisor of Admissions, City College Midtown Business Center, 430 W. 50th St., New York 19, N. Y.

Regional Airports Seen as "Pivots" of Future in U. S.

Large regional airports will soon become the geographic pivot around which U. S. community life will revolve, says Chairman George Howe of Yale University's Department of Architecture.

Present airport facilities, according to Professor Howe, are already proving inadequate and new airports are being built in areas farther from the cities where land for expansion is readily available. At the same time, he notes, plans have been made for large helicopter landing stages in the center of the cities.

Professor Howe discussed the effects of air transportation on community planning on a recent edition of Yale's weekly radio program over a New Haven station.

At present, aviation has brought about the new concept of airport facilities — the hangar and the air terminal building — but these are still in a state of evolution, Mr. Howe explained. He went on to say that, while the general

(*Continued on page 186*)

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No closet, floor or basement space is wasted. No chimney, ducts or electricity are required for installation in any exterior wall of wood, brick, stucco or cement-block construction.

Exclusive "Safety-Sealed" construction *seals* all combustion air and products from contact with heated room air. The patented exterior wall vent draws in *outside* air for combustion, then vents all combustion products outside *through the wall!*

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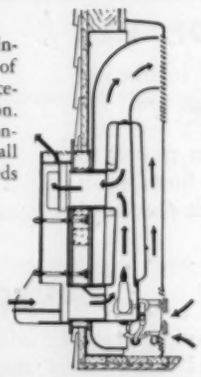
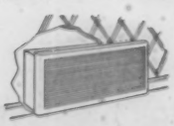


These Stewart-Warner Heaters are "Safety-Sealed," too!



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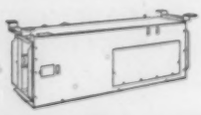

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THE RECORD REPORTS

(*Continued from page 184*)

idea of modern house planning is "pretty well established," airport facilities will probably assume a recognizable conceptual form within the next half century, as metropolitan railroad stations and their surroundings did in the last.

"If architectural concepts are taken in a broad sense," the Yale professor pointed out, "automobiles have contributed the parkway, the express highway, the traffic interchange nucleus and the multi-story garage. These are all new. But so far, no well-integrated communities have grown up around air terminals or along motor traffic routes.

"Such communities have always appeared in the past on traffic lanes and crossings, rivers, trails, roads and railway lines; and it seems to me inevitable that the old process should repeat itself, along new traffic routes and crossings, in the long run."

Citing the "recognized economic fact" that an airport is not a sound financial unit, Mr. Howe said "a regional airport would necessarily be in charge of a regional authority of some kind.

"It doesn't seem impossible to conceive, then, since government planning at the regional and national levels has been accepted in principle, that the authority in charge of an airport should go beyond the provision of subsidiary facilities directly connected with it to plan a whole town.

"Such a town could be planned on a nuclear traffic and utility layout, with land-use, land-coverage and height zoning provisions, as well as a diagram for gradual expansion. Admittedly, such an undertaking would involve a large expenditure, initially non-remunerative, but I believe such a new town at an important traffic center, developed by private enterprise within a planned framework, would grow at an astounding rate."

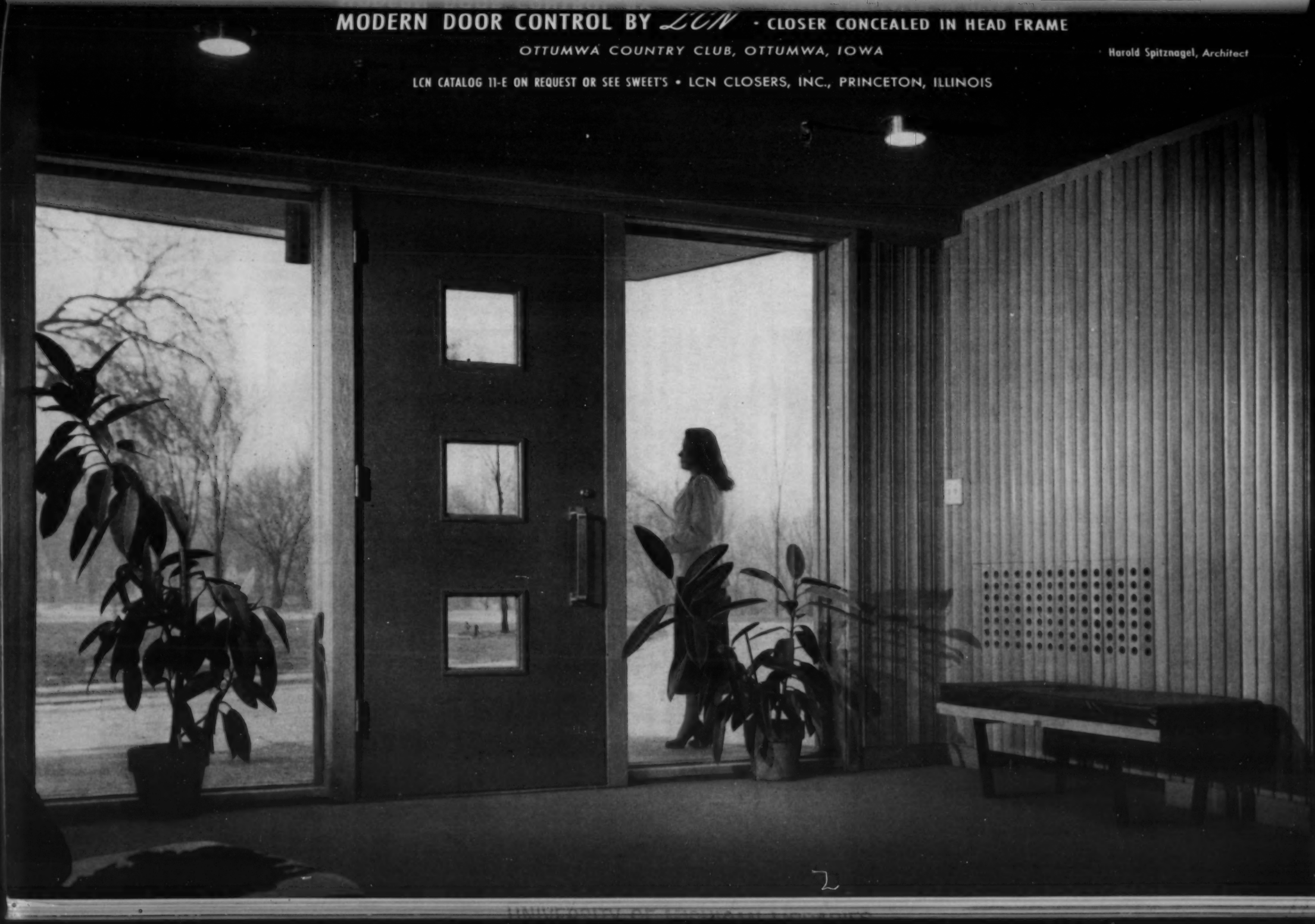
Illinois Small Homes Council Revises Interior Design Circular

"Interior Design," a revised edition of an earlier circular by the Small Homes Council of the University of Illinois, Urbana, Ill., is now available.

The new circular replaces a 1946 issue entitled "Fundamentals of Interior Design" in the Small Homes Council's series of 24 publications for home planners and builders.

(*Continued on page 188*)

MODERN DOOR CONTROL BY LCN - CLOSER CONCEALED IN HEAD FRAME
Harold Spitznagel Architect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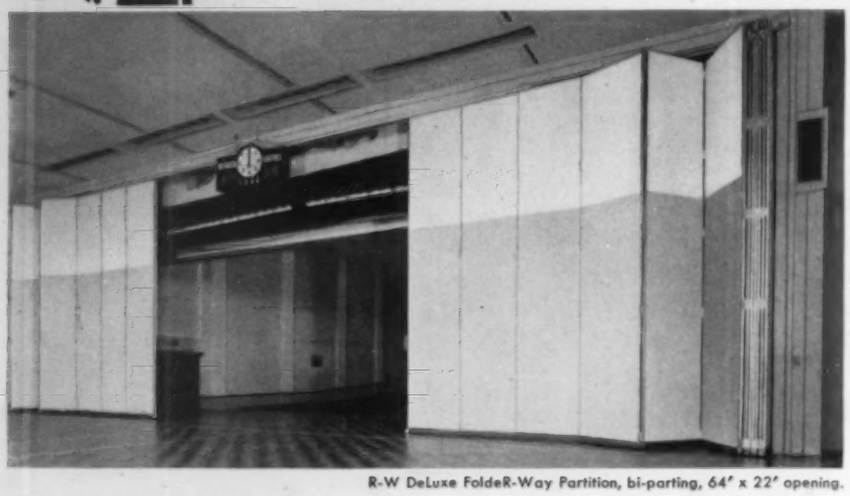
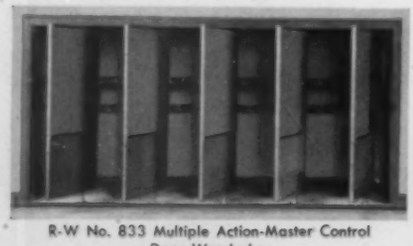


R-W DeLuxe FoldeR-Way Partition, bi-parting, 64′ x 22′ opening.

Just a turn of the switch key and the R-W DeLuxe FoldeR-Way Partition goes into operation silently and swiftly . . . locking and unlocking, opening and closing automatically! Designed specifically for school gymnasiums, auditoriums, stages and other high or wide openings—no matter how large—to be closed against light and sound, electrically operated FoldeR-Way Partitions are the answer to present-day problems of economy in space and expenditure. They transform any large indoor area into two smaller ones—a quick change made entirely without manual effort.

Yes, you turn the switch key and R-W does the rest! DeLuxe FoldeR-Way locks to the floor without floor bolts, keepers, guides, tracks or manually operated sealing strips, pressure-sealing itself to the floor for complete soundproofing. When bi-parting partitions are installed, both halves are synchronized to operate simultaneously—all sections are full-size, equal width doors folding in accordion fashion into jamb or pocket.

R-W Offers a Complete Line of Single and Multiple Action Classroom Wardrobes



R-W No. 833 Multiple Action-Master Control Door Wardrobe

Richards-Wilcox Classroom Wardrobes are outstandingly popular because they are designed to give maximum space for pupils' wraps without overcrowding—because simplicity of design and installation in wall recess means low cost. Wardrobes are available in Single or Multiple Action-Master Control Door units with mounted slate or cork boards. Each door opening accommodates eight to ten pupils.

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1880 RICHARDS WILCOX R-W AURORA 1950

OVER 70 YEARS

THE RECORD REPORTS

(*Continued from page 186*)

Faculty Appointments

• Frederick M. Wells, chairman of the Department of Design in Cornell University's College of Architecture, has been named Andrew Dickson White professor of architecture. He succeeds Prof. A. Duncan Seymour Jr., who retired June 30.

• Dean Ernest Pickering of the University of Cincinnati's College of Applied Arts has been appointed a member of the new national accrediting board of the National Association of Schools of Design. The board will direct a program set up by the association for the accreditation of schools of design in the U. S.

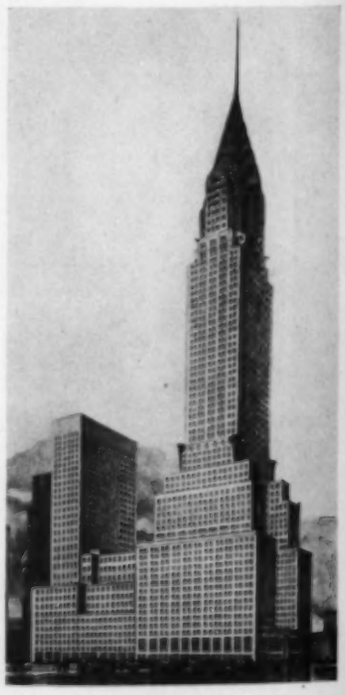
BUILDING NOTES

Plan 32-Story Addition For Chrysler Building

Chrysler Building East, a 32-story addition to the Chrysler Building in New York, will occupy about 75,000 sq ft of land, the entire block bounded by Lexington Avenue, 42nd Street, 43rd Street and Third Avenue except for a

(*Continued on page 192*)

Model photo shows present Chrysler Building with projected addition seen at left



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Here it is! The big air conditioning news of the year! Luxurious, comfortable, mechanically cooled and dehumidified air for the entire residence with the same dependability, the same freedom from trouble your clients have learned to demand from the most modern home refrigerator.

And here's what made it possible:

The Yorkaire Sealed Circuit Conditioner has a trouble-free, completely hermetically sealed cooling system—tested and heat-sealed at the factory. Dirt can't work its way in. The refrigerant can't leak out.

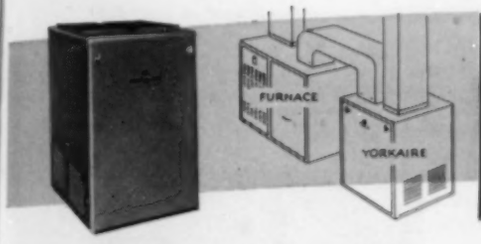
It is the most positive assurance of dependable residential air conditioning ever offered home owners! Assures simplicity of installation! Assures simplicity of operation! Assures the lowest possible costs: less than $1,000 to cool an average size 5 room home heated by forced warm air!

The "hermetic seal" principle of the Yorkaire Residential Conditioner cooling circuit has proved itself season after season to thousands of enthusiastic users of York's famous single-room air conditioners and multiroom and commercial size "package" units. And it has proved itself as well in York's Automatic Ice Maker, developed to provide the food and beverage industry with a convenient, economical, point-of-use source of pure, clear, uniformly crushed ice and the famous "ice cube with the hole."

You'll be amazed at the speed and ease with which Yorkaire Sealed Circuit Conditioners can be installed—using the ducts of present heating plants or, at additional cost, as an independent central system, or series of remote units—tucked away wherever there's waste space.

And whatever the type or size of the home—dream stage or existing construction—there are Yorkaire Sealed Circuit Conditioners, sizes and models, to dovetail perfectly with your cooling and dehumidifying specifications.

By all means, call your York Representative now to arrange for your future installations. York Corporation, York, Penna.



Your York Representative is an air conditioning specialist, able and qualified to provide maximum efficiency and tight-fisted economy whether you're interested in room, residential, office, store or commercial air conditioning.

FOR ALL TYPES OF HOUSES—ALL APPLICATIONS

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SEE YOUR CLASSIFIED TELEPHONE DIRECTORY

(*Continued from page 188*)

100 by 100 ft plot on 42nd Street east of the present structure.

Reinhard, Hofmeister & Walquist are the architects, with Guy B. Panero as consulting engineer and Edwards & Hjorth as structural engineers. Work has already started and completion is scheduled for Sept. 30, 1951.

The new building will abut the northeast wing of the Chrysler Building for the first six floors. It will be a completely self-contained unit with all its own utilities.

The tower portion of the addition will be located at the opposite end of the block from the Chrysler Building to protect access to daylight for both. Special consideration was given in design to flexibility in floor plan.

The addition has been designed to harmonize with the present building. Architect for the 77-story Chrysler Building was William Van Alen, now of Carroll, Grisdale & Van Alen, Philadelphia.

The new building will add about 400,000 sq ft of rentable office space out of a total area, including ground floor and basement, of 430,000 sq ft. Total area of the present structure is 930,000 sq ft.

U. S. Steel-Mellon Skyscraper Is Going Up in Pittsburgh

Scheduled for completion next May is the 40-story office building for United States Steel Corp. and the Mellon National Bank and Trust Co. now under construction in Pittsburgh's "Golden Triangle."

Pittsburgh's newest skyscraper, another giant of glass and stainless steel, is expected to cost about $28,500,000. William York Cocken of Pittsburgh and Harrison and Abramowitz of New York are the architects.

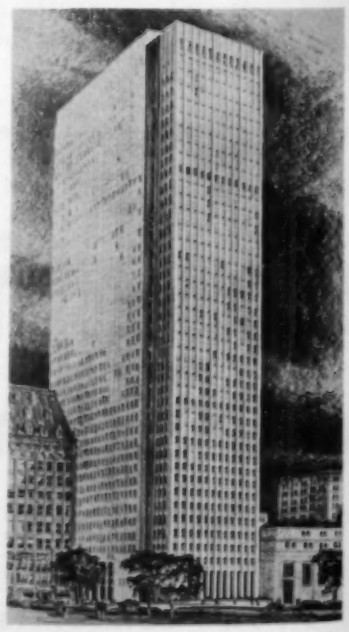
The building, which will be the first large office building in Pittsburgh to be completely air conditioned, will have stainless steel window frames and sash and a facade of stainless steel panels.

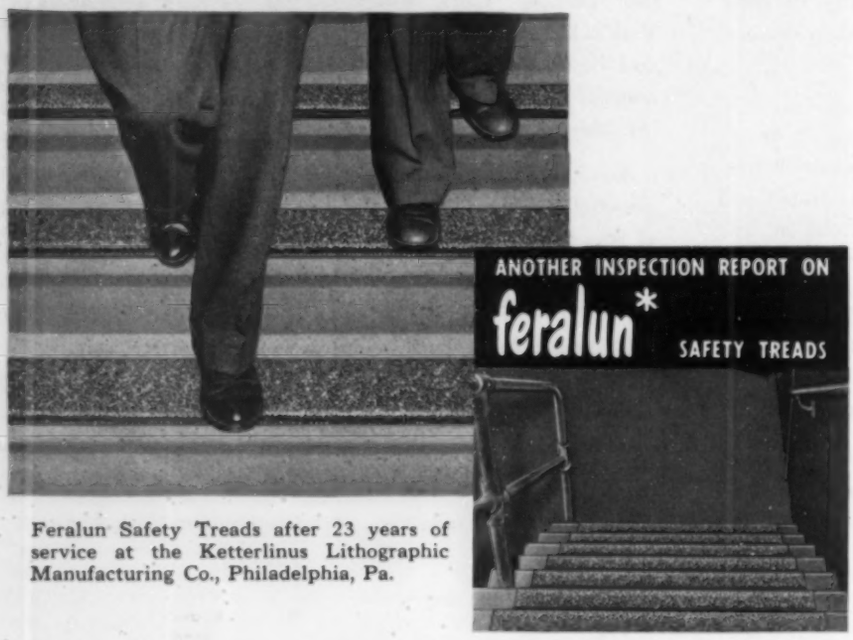
Sub-floors will be made of cellular steel panels, welded to the steel frame. The cells will carry piping, telephone cables and conduits. Access to electrical outlets will be possible at almost any spot by merely drilling a hole through the floor and inserting a plug.

Windows will have a special greenish-color glass to reduce glare, absorb infrared rays and keep out summer heat. A

(*Continued on page 194*)

Below: Photo of rendering, Pittsburgh's new skyscraper, to be completed next May





Feralun Safety Treads after 23 years of service at the Ketterlinus Lithographic Manufacturing Co., Philadelphia, Pa.

"... no signs of wear after 23 years"

There's a lot of daily traffic between departments of this busy lithographic company, yet for 23 years Feralun Safety Treads have withstood the punishment of thousands of hurrying feet—with "no signs of wear."

A quarter-century of resistance to wear—a quarter-century free from maintenance and repairs—*and* a quarter-century of underfoot safety, too, on Feralun's non-slip surface with many years of service ahead.

Examples like this show why architects, engineers and builders insist on Feralun treads, nosings and plates. Made of cast iron with wear-resistant abrasive particles securely embedded in walking surfaces, including the nosings, Feralun provides a sure-footed "grip" that keeps feet from slipping—and wears and wears. The coupon below will bring you full information on Feralun. Send it today.

Also available in Bronze, (Bronzalun)—Aluminum, (Alumalun)—and Nickel Bronze, (Nicalun).

*Reg. U.S. Pat. Off.

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Gentlemen: Please send me full information on Feralun.

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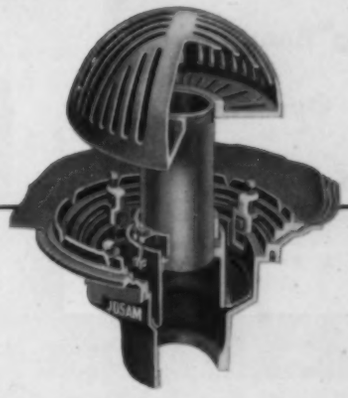
...has the widest range of types and sizes of plumbing drainage products in the world!

...is specified by more architects and has its products installed in more buildings than all other makes combined.

Why make a major problem out of the plumbing drainage contract? Why spend valuable time — why take chances guessing which product to use when the answer to any plumbing drainage problem is in the two facts stated above. The reason for this is that Josam products can be depended upon to provide permanent protection throughout the life of the building.

The Josam Roof Drain illustrated, for example, is one of the many hundreds of plumbing drainage products developed by Josam — The Standard of the Industry. So, when the problem is drainage for any location or service, don't take chances — put proven experience to work for you — and install Josam. The coupon below will bring you all the information you need about plumbing drainage products.



JOSAM ROOF DRAIN — With Flooding Water Dam

Today, many buildings are constructed with provisions for a flooded roof for insulating or air conditioning purposes. The "Flooding Water Dam" type of roof drain is adjustable for ¾" to 6" depth of water on the roof. The brass standpipe with cast iron dome, fits into a packing gland which also holds the cast iron sediment cup in the drain body.

To completely drain the roof, standpipe is lowered by loosening bolts and pressure ring which automatically drops the standpipe into the body of the drain; and the dome in the lowered position renders the same service as a regular dome. When the roof is again ready for flooding, standpipe is set to desired height and bolts and pressure ring are tightened.

This is just one of hundreds of Plumbing Drainage Products pioneered by Josam — The Standard of the Industry.

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ROOF DRAINS. To provide continuous drainage in spite of accumulated debris on roof.

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INTERCEPTORS For grease, oil, hair, plaster and sediment.

SHOCK ABSORBERS. To eliminate water hammer in pipe lines.

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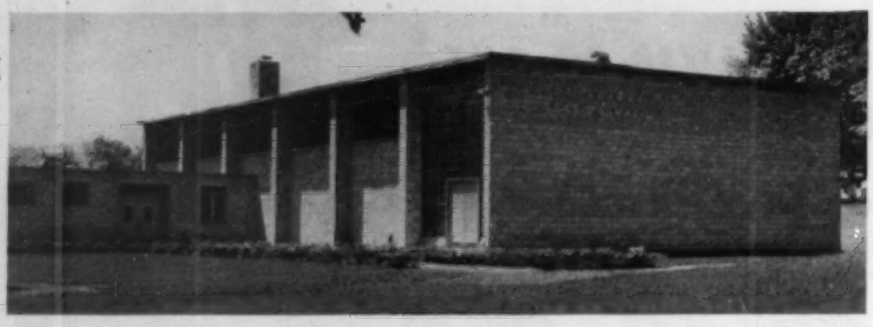
ADDRESS _____
CITY and STATE _____

 (*Continued from page 192*)

J. Alex Langley Photo



Above: Photo of gymnasium-auditorium unit at Pleasantville, N. Y., Cottage School

vertical conveyor system will take mail, stationery and other supplies to all floors. Trucks making deliveries to the building will drive into the basement, unload and turn around on a turntable to facilitate exit.

Headquarters of U. S. Steel will occupy 30 floors. T. Mellon & Sons and the Mellon bank will use eight floors for offices.

Structure and Materials Yield Style at Low Cost

Two low-cost buildings for the Jewish Child Care Association's Pleasantville, N. Y., Cottage School employ inexpensive, pre-colored concrete blocks and exterior buttresses to form an unusual design pattern.

Kahn & Jacobs of New York were the architects for the buildings, a combination gymnasium-auditorium unit and an L-shaped dining hall.

The masonry piers were placed on the exterior of the buildings in order to preserve smooth, unbroken surfaces for the interior. The concrete blocks, in varying shades of buff and of varying texture, were used to form a cavity-type wall; with the same block for exterior and interior, except in the gymnasium, where a glazed ceramic tile was used for interior facing.

Between the gymnasium and an outdoor swimming pool is a locker room wing which has separate facilities for boys and girls. The building also has a mezzanine at one end for a modern motion picture projection booth, a fully-equipped stage and a retractible basketball backboard. The entrance has a panel of glass blocks the height of the building.

Fred N. Severud was structural engineer and Wohlpart & Hart were mechanical engineers.

CONTEMPORARY DESIGNERS PLAN EXHIBIT IN OCTOBER

Plans have been announced by the Society of Contemporary Designers for its first annual exhibition at the California State Exposition Building in Los Angeles from October 1 to November 1.

The exhibition will attempt to promote "awareness of contemporary directions in design as related to world-wide standards of quality."

The work to be shown has been selected from published and produced examples of graphic, industrial and architectural design.

(*Continued on page 196*)

• Enduring Beauty
• Ease of Operation
• Economy of Maintenance

Ellison the Balanced Door in 100 PARK AVE.

Architects — Kahn & Jacobs
General Contractor — George A. Fuller & Co.

The Door that lets TRAFFIC through QUICKLY

Ellison

ELLISON BRONZE CO.
Jamestown, New York
representatives in 71 principal cities

the BALANCED DOOR

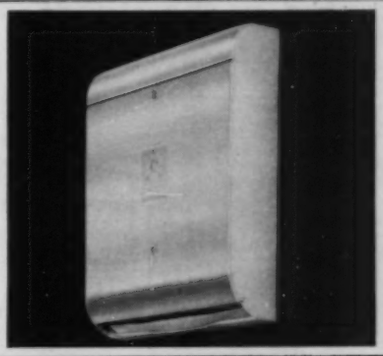
In the new Boston home of John Hancock Mutual Life Insurance Company...

Architects: Cram and Ferguson

IT'S SCOTT

Streamlined Cabinets

SCOTT #998 TOWEL CABINET
in the modern washrooms of the John Hancock building. Note the shining metal finish, streamlined design... and sturdy metal construction.



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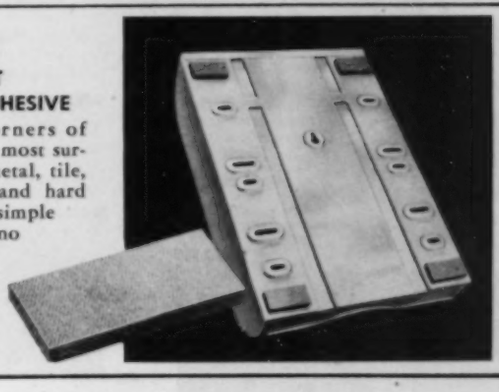
Special Adhesive

SCOTT SPECIAL ADHESIVE
holds four corners of #998 cabinet to most surfaces—glass, metal, tile, marble, brick and hard enamel. Rapid, simple installation . . . no broken tiles.



...for up-to-date washrooms!

FIRM BELIEVERS IN DOING THINGS the *modern* way, Cram and Ferguson found a partner in Scott when they designed the washrooms for Boston's new John Hancock building.

All Scott fixtures, you'll find, blend handsomely with the newest architectural trends. And Scott consultation service (yours for the asking) wraps up the experience gained in servicing over 300,000 washrooms and puts it beside your planning board.

Don't miss out on all the advantages of Scott *modern* fixtures and Scott services when you plan the all-important personal service rooms for your next client. Contact Washroom Advisory Service, Scott Paper Company, Chester, Pennsylvania.

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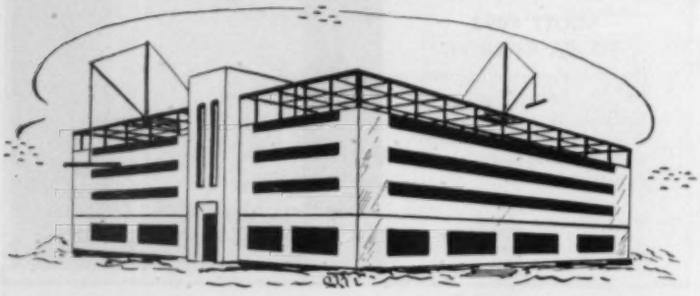
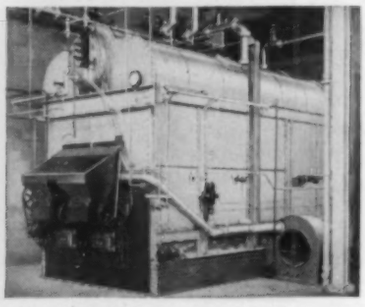
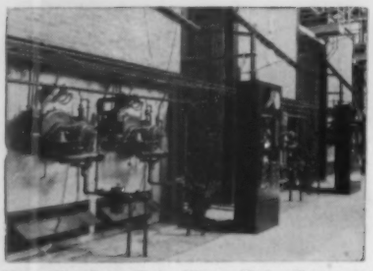


Titusville Scotch Marine High Pressure Boilers built with heating surfaces of 97 to 2993 square feet.

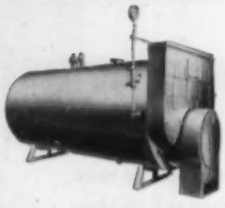
Titusville Ticotherm Steam Generators built in sizes ranging from 1000 square feet heating surface, and upwards.





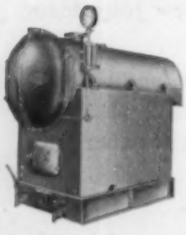
Titusville Bent Tube Water Tube Pressure Boilers built in sizes ranging from 729 square feet heating surface to 8316 square feet heating surface, in required pressures.

Titusville Scotch Marine Heating Boilers built in 19 sizes from 129 square feet to 2500 square feet heating surface, with 2190 to 42,500 square feet of steam radiation.



Titusville Portable High Pressure All-Welded Firebox-Firetube Boilers built in 13 sizes ranging from 250 square feet to 2500 square feet heating surface.

Three Pass Compact Type Welded Heating Boilers built in 19 sizes, from 129 to 2500 square feet heating surface, with 2190 to 42,500 square feet of steam radiation.



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THE TITUSVILLE IRON WORKS CO.

TITUSVILLE, PENNA.

THE RECORD REPORTS

(*Continued from page 194*)

ROME PRIZE FELLOWSHIPS ARE OFFERED FOR 1951–1952

A limited number of fellowships for "mature students and artists capable of doing independent work" in architecture, landscape architecture, musical composition, painting, sculpture, history of art and classical studies are again being offered by the American Academy in Rome.

Fellowships will be awarded on evidence of ability and achievement, and are open to citizens of the United States for one year beginning Oct. 1, 1951, with a possibility of renewal.

Research fellowships, offered in classical studies and art history, carry a stipend of $2500 a year and free residence at the Academy. All other fellowships carry a stipend of $1250 a year, transportation from New York and return, studio space, free residence at the Academy, and an additional allowance for European travel.

Applications and submissions of work, in the form prescribed, must be received at the Academy's New York office by Feb. 1, 1951. Requests for details should be addressed to the Executive Secretary, American Academy in Rome, 101 Park Ave., New York 17, N. Y.

Founded in 1894, the American Academy in Rome is devoted to furthering the arts and humanities in the United States, principally through granting fellowships to American artists, scholars and students.

"MAGAZINE OF ART" EDITOR AWARDED FULBRIGHT GRANT

Robert Goldwater, editor of the *Magazine of Art*, has been awarded a Fulbright Grant for study in France during the academic year 1950–51.

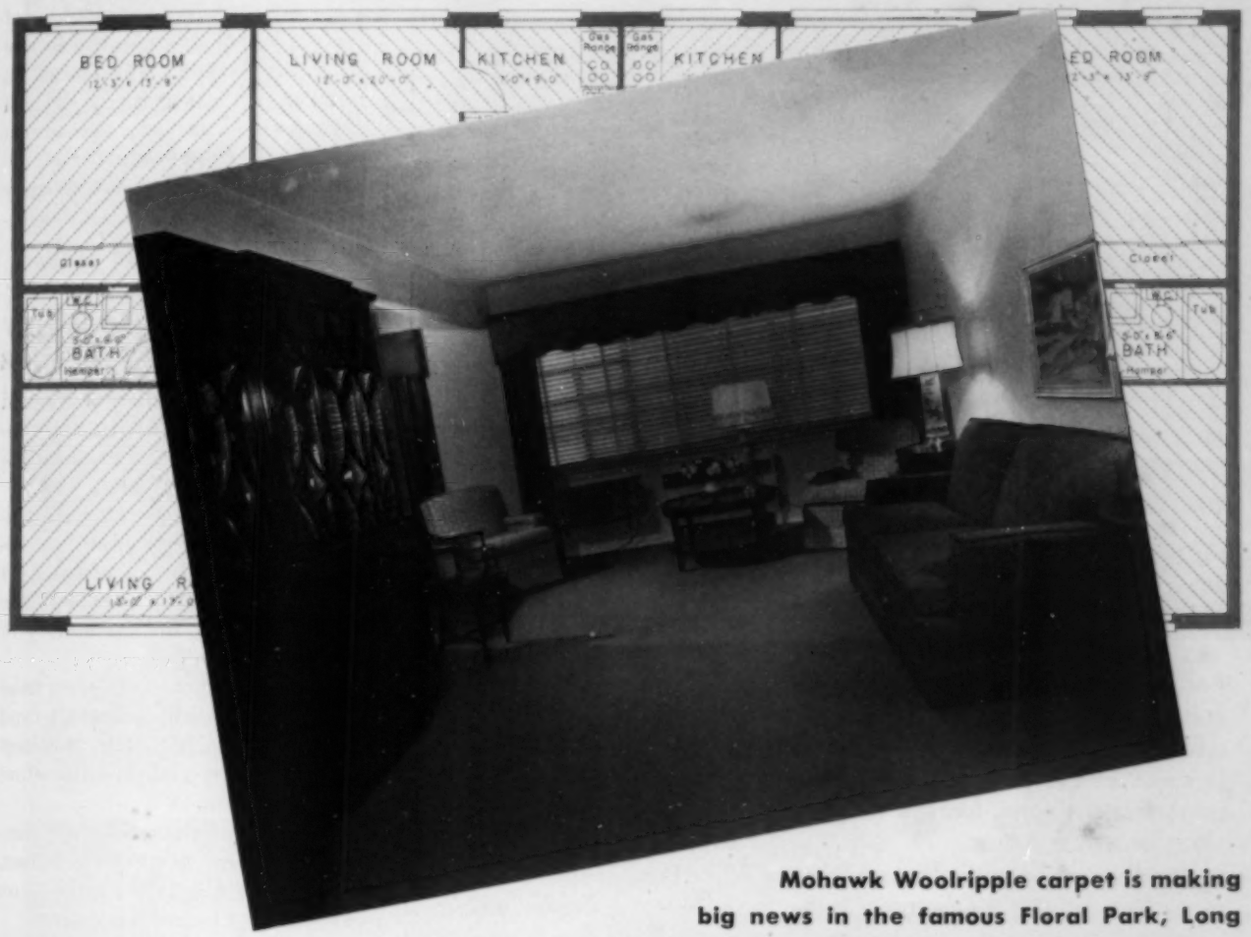
Mr. Goldwater, who is also associate professor of art at Queens College, will spend his time abroad in research on symbolism in preparation for a book on that subject.

During Mr. Goldwater's absence, James Thrall Soby, a member of the magazine's editorial board and a trustee of The American Federation of Arts, will serve as acting editor of the *Magazine of Art*. Mr. Soby, who is also a trustee of the Museum of Modern Art, New York City, is vice chairman of its Committee on museum collections and a member of the exhibition committee.

(*Continued on page 198*)

Mohawk Woolripple Carpet

The finishing touch to the Floral Park Story



Mohawk Woolripple carpet is making big news in the famous Floral Park, Long Island apartment project.

Carpet is helping to rent the Childs Garden Apartments in Robert Metrick's much-talked-about Floral Park Apartment Development. And Robert Metrick has made certain the carpet he puts down is *good* carpet. Every one of the Childs Garden Apartments has Mohawk's famed *Woolripple Carpet*. And he gives tenants their choice of today's leading colors!

Whatever *your* carpet needs, we suggest you turn to the Mohawk line . . . the only line including all weaves of domestic carpet —from long wearing, economical floor coverings, to luxurious, hand-carved Chenille.

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Choose the enduring beauty of cement paint made with ATLAS WHITE CEMENT

For sparkling beauty and lasting utility, specify factory-prepared portland cement paint made with Atlas White Cement. In bright, refreshing white, or color, it makes a handsome finish for concrete, concrete masonry, stone, brick or hollow tile. It endures because it penetrates the pores, forms a tough protective coating that resists moisture, dirt and dust.

And the same qualities that make Atlas White Cement the choice of cement paint manufacturers make it ideal as a matrix for Terrazzo, Stucco, and Architectural Concrete Slabs. It brings out clearly the rich values of color pigments and aggregates. Because of its pure white color, Atlas White Cement enhances delicate shadings and tones.

Atlas White Cement complies with ASTM and Federal Specifications for portland cement. It has the same advantages when used for concrete. Concrete made with Atlas White Cement cleans easily. Maintenance costs are low.

For further information on the uses of Atlas White Cement, see SWEET'S Catalog, Section 4E/7a and 13C/5 or write to Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N.Y.

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FOR BEAUTY AND UTILITY

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FOR TERRAZZO, PAINT, SLABS, STUCCO

"THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries*
Sunday Evenings—NBC Network

THE RECORD REPORTS

(*Continued from page 196*)

Lloyd Goodrich, for the past eight years chairman of the editorial board of the *Magazine of Art*, has resigned to give his full time next year to plans for the new building of the Whitney Museum of American Art, of which he is associate director. Mr. Goodrich will continue as a member of the magazine's editorial board and will be succeeded as chairman by Henry R. Hope, chairman of the department of art at Indiana University and president of the College Art Association of America.

ITALY HAS A NEW MONTHLY ON ARTS AND ARCHITECTURE

Spazio, a monthly survey of arts and architecture in Italy, ancient and contemporary, made its bow with an 88-page, 13- by 10-in. July issue.

"What refers to foreign art and architecture will not be overlooked," according to the editors, "but examined apart by special informative services to the extent required by the universality of today's civilization."

One notable feature in the first issue is a 15-page preview in photographs and text of a forthcoming book by Architect Carlo Pagani on Italian architecture from 1946 to 1949.

Contents of all the articles are summarized in three languages — Italian, French, and a delightful English — on pages three and four of the issue.

PLAN ARCHITECTS' SESSIONS FOR HOSPITAL CONVENTION

Meetings and an architectural exhibit for all architects interested in hospital design will be conducted at Atlantic City in connection with the 52nd annual convention of the American Hospital Association, September 18–21.

Sessions exclusively for architects will be held at the Hotel Dennis on Monday and Tuesday mornings, September 18 and 19. The meetings will be open to any architect who wishes to attend.

An all-day regular session of the convention, on construction, will be held on Wednesday, September 20. This meeting will be open to hospital administrators as well as architects.

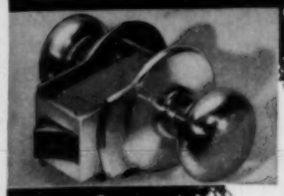
Subjects for the Wednesday session will be: Planning for Early Ambulation;

(*Continued on page 200*)

THE FAMED CORBIN 900 SERIES

Unit Locks AND Latches

900—710
Interior Door latchset. Operates by knob from either side at all times.



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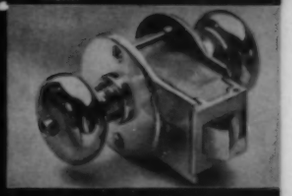
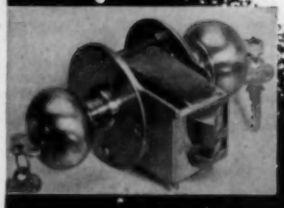
Privacy Lock for Bath or Bedroom. Features emergency unlocking mechanism.





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Classroom Door function. Key operation in outside knob only — inside knob always free.

The finest group of solid brass or bronze locks and latches in all the world, bar none.

Appropriate for use on all present day buildings — Available in 5 different functions to meet all standard door specifications — and in a variety of beautiful finishes.

Corbin "900" Units express the spirit of today in a dignified substantial manner.

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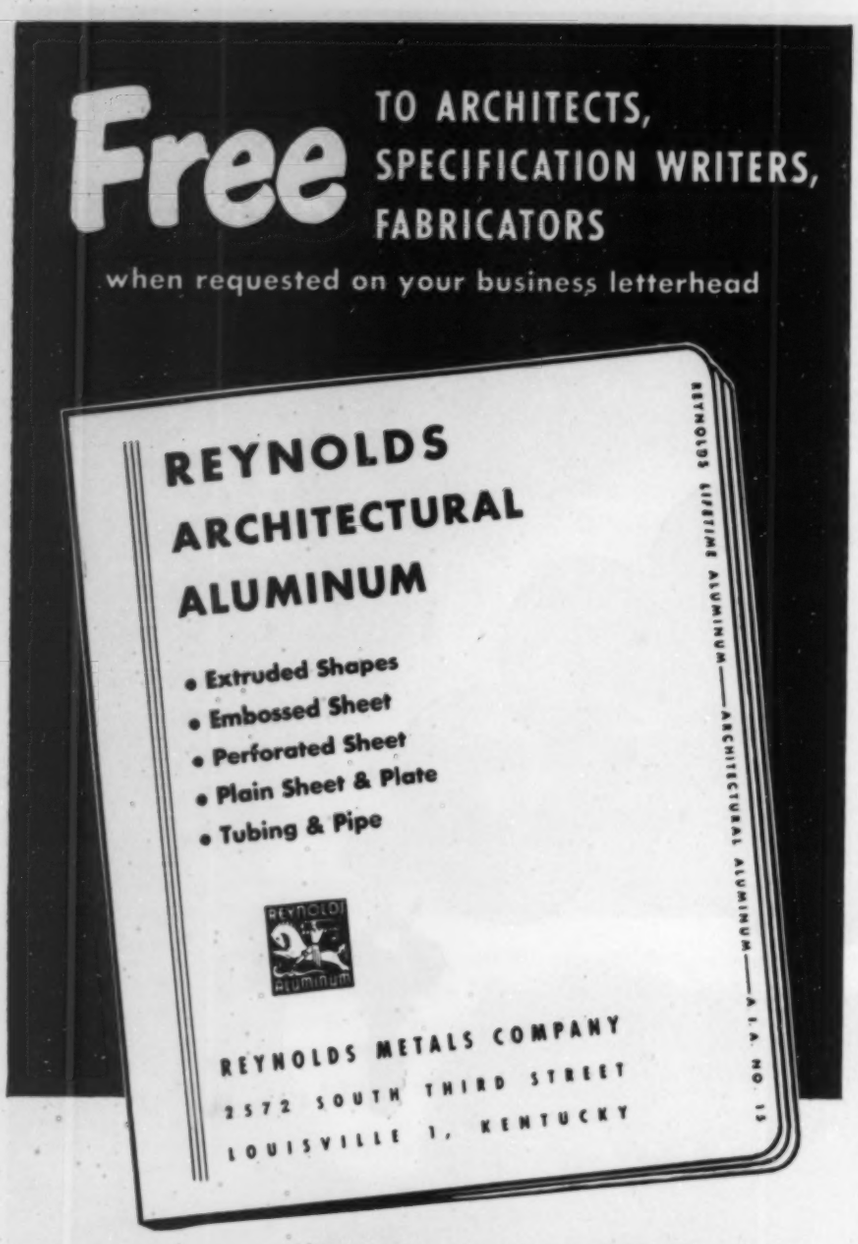
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REYNOLDS Architectural ALUMINUM

A COMPLETE ALUMINUM SERVICE TO ARCHITECTS AND FABRICATORS

THE RECORD REPORTS

(*Continued from page 198*)

Isotopic Treatment in Hospitals; and Rooming-in Requirements for Newborn. World-wide developments in hospital design will be discussed by A. G. Stephenson, architect, of Melbourne, Australia, who is just completing a year's study of hospitals around the globe.

The exhibit will be comprised of hospitals contracted for erection in this country, its territories and possessions and Canada since Jan. 1, 1945. Entries, which were due August 10, were screened by a jury composed equally of architects nominated by The American Institute of Architects and hospital administrators appointed by the American Hospital Association. Rules for the exhibit were worked out with the approval of The A.I.A.

The exhibit, as well as the Wednesday meeting, will be held in the Atlantic City Convention Hall. Advance registration for the meetings is not necessary, but hotel reservations should be secured in advance through the Atlantic City Convention Bureau (American Hospital Association Housing Bureau), Atlantic City, N. J.

CRANE CO. JOINS REVERE IN QUALITY HOUSE PROGRAM

Crane Company of Chicago has joined with Revere Copper and Brass, Inc., in co-sponsorship of the Quality House Program of Southwest Research Institute.

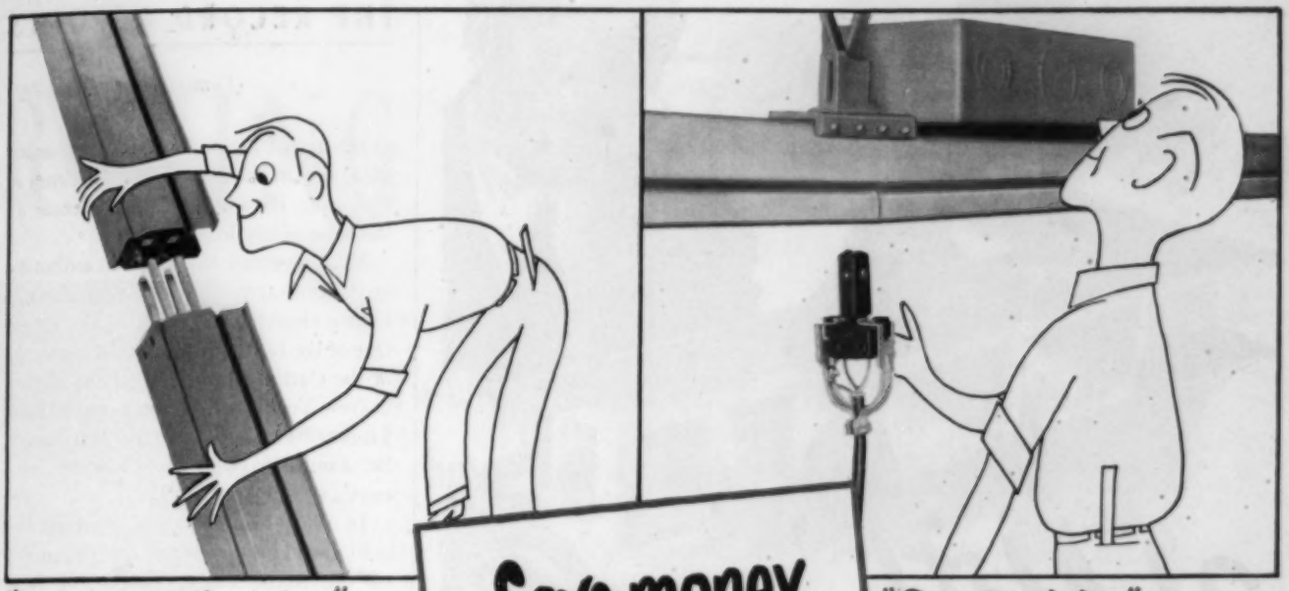
During the past two years the nationwide program to assist merchant builders in providing house buyers with top-quality houses at moderate prices has approved plans and specifications for more than 1700 houses in projects built from coast to coast.

Director C. W. Smith of the Institute's Division of Housing and Construction Technology said the Division planned an immediate expansion of its activities. Ultimately the Institute expects the participation of 15 or 20 of the leading manufacturers of quality building products in the country as co-sponsors of its Quality House program.

FRANK CLEVELAND, F.A.I.A.; HEADED CRAM & FERGUSON

Frank Ernest Cleveland, F.A.I.A., who died at Wollaston, Mass., July 30

(*Continued on page 202*)



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"Quick-install-ability"
saves initial cost

LTG FLEX-A-POWER busways are pre-fabricated housings which are easily coupled in any arrangement and in runs of any required length. Time for installing is much less than for wiring and conduit.

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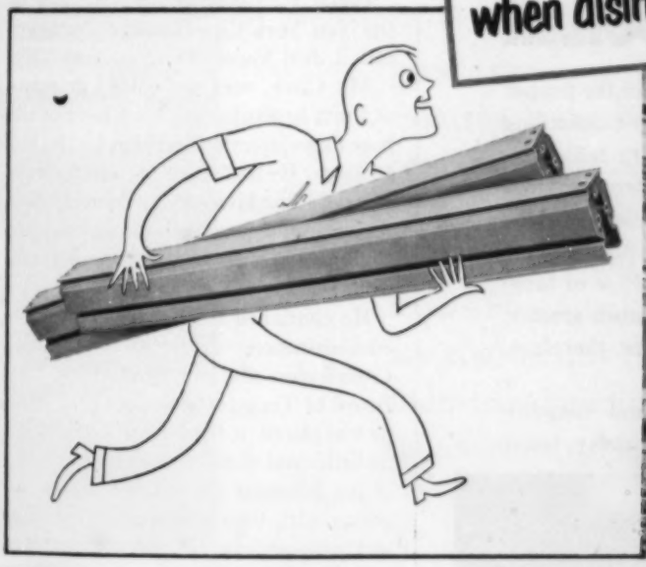
saves time relocating machines

Take-off plugs or trolley can be inserted anywhere (no drop-out section needed for trolley). You can add or relocate loads without rewiring expense and without long extensions.



"Take-apart-ability" saves material expense

Whenever a *major* relocation of outlets is required, the entire FLEX-A-POWER system can be dismantled, removed to another location and re-installed with practically 100% re-use of materials.

Sealed Power Corp. saves with Flex-a-Power

LTG FLEX-A-POWER, one of six forms of FLEX-A-POWER for various services from main breakers to individual loads, is designed for light-duty lighting, small tools, appliances. Write for Bulletin TEC-3, THE TRUMBULL ELECTRIC MANUFACTURING COMPANY, Plainville, Conn.

TRUMBULL (T) ELECTRIC

TRUMBULL'S TRAIN OF NEW PRODUCTS

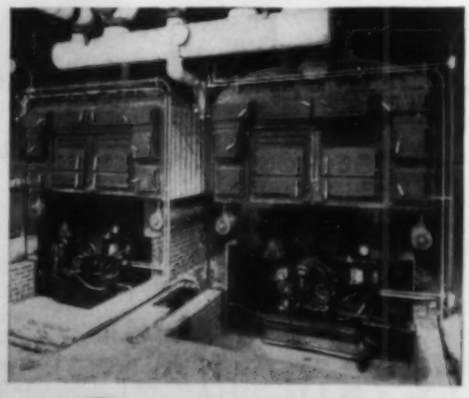
Hold it!

you don't need a Tall Chimney with an H. B. SMITH BOILER

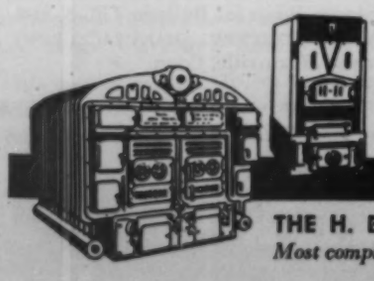
To keep the lines of that modern functional school within the proper architectural proportions — and to give your client truly outstanding heating plant performance — we suggest an H. B. Smith boiler.

The vertical water tube design of H. B. Smith boilers provides minimum draft resistance. Hot gases rise naturally between the boiler sections before entering the side flues. This positive gas travel is an advantage not found in boilers of the return-flue or long-fire-tube type, in which draft loss through the boiler is much greater. Tall chimneys or complicated induced-draft controls are, therefore, not necessary with H. B. Smith boilers.

For added assurance of economy of operation and long-life performance in schools or other buildings, consider the many, many installations in older schools where H. B. Smith Cast Iron Boilers have been giving top performance for 25, 35, even 50 years! You can recommend an H. B. Smith boiler for the life of the building!



A modern school equipped with No. 60 Smith Boilers.



H. B. Smith

CAST IRON BOILERS

THE H. B. SMITH CO. INC., WESTFIELD, MASS.

Most complete line in the world of cast iron boilers for heating

5

THE RECORD REPORTS

(*Continued from page 200*)

at the age of 72, started his career as an office boy in the Boston firm of Cram & Ferguson. He was its senior partner at the time of his death.

Mr. Cleveland, known as an authority on Gothic architecture, designed well-known churches in several major cities. One of the best-known was the baptistry of the Cathedral of St. John the Divine in New York City. Others were the East Liberty Presbyterian in Pittsburgh, St. James in New York and St. Vincent's in Los Angeles.

In 1903, Mr. Cleveland received the gold medal for design and draftsmanship of the Architectural League of New York, and he was made a Fellow of The American Institute of Architects in 1946.

RALPH R. CLARK, KNOWN AS A TRANSIT ARCHITECT

Ralph R. Clark, senior architect of the New York City Board of Transportation, died August 2 in New York City.

Mr. Clark, who was a 1905 graduate of Pratt Institute, had been head of the board's architectural division for the last 10 years. He had spent his whole career in transit architecture, beginning as a junior architect with the Public Service Commission a year after his graduation from Pratt.

He continued through the successive administrations of the State Transit Commission and the New York City Board of Transportation until, in 1940, he was placed at the head of the Board's architectural division, which has charge of the designing of subway stations, together with their mezzanines, corridors and passageways. He was a director of and consulting architect for the New York and Suburban Federal Savings and Loan Association.

ADDENDA

The RECORD has learned with regret that in an announcement of the 30th medal award of the American Group, Societe des Architectes Diplomes, P.L.G.F., to the Department of Architecture of the University of Illinois, a list of previous award recipients was incomplete. Inadvertently omitted from the list were the University of Notre Dame, Texas Technological College and New York University.

PROVING GROUNDS

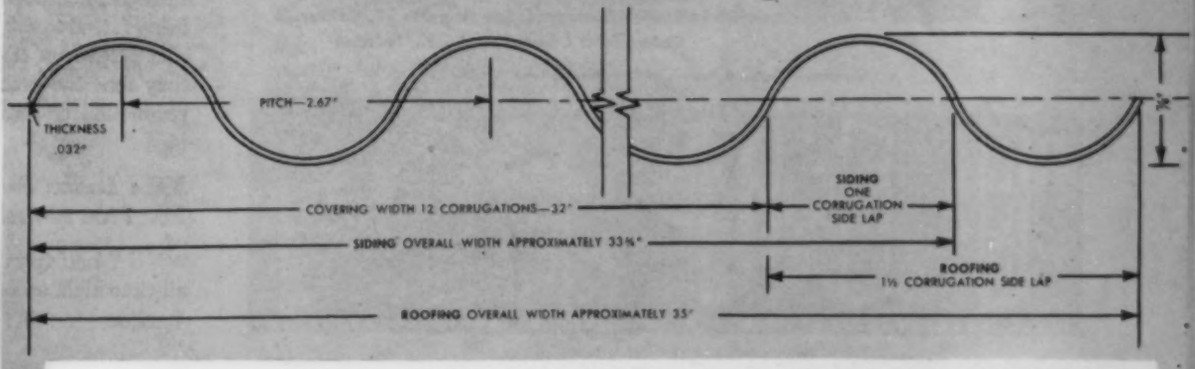
Twenty-four years of corrosive coal dust have not harmed Alcoa Building Sheet

In the damp, corrosive, dust and smoke-laden air of a coal tipple, metal roofing and siding meets one of its severest tests. Under these conditions, for twenty-four years and more, unpainted Alcoa Aluminum Building Sheet has performed perfectly and still is on the job.

No other material so well combines low first cost, ease of erection, freedom from maintenance, long life and good appearance. You can speed construction, eliminate painting costs, be sure of corrosion resistance when you plan industrial buildings using Alcoa Building Sheet.

Conveniently located distributors supply Alcoa Industrial Building Sheet in all standard sizes with accessories and fasteners. For complete details, design and fastening methods, ask your nearby Alcoa sales office for the booklet, "Alcoa Industrial Building Sheet", or write ALUMINUM COMPANY OF AMERICA, 1888J Gulf Building, Pittsburgh 19, Penna.

Alcoa Industrial Building Sheet



Supports 80 p.s.f. uniform load with 4 foot purlin spacing. Weighs only 56 lbs. per hundred square feet. Available in 5 to 12 foot lengths, with all flashing and fastening accessories, from conveniently located distributors. For details and prices, call your Alcoa Sales Office.

THE RECORD REPORTS

Comparative June figures for the four classifications show gain in every category:

Residential — 1950, $63,705,300; 1949, $46,885,600.

Commercial — 1950, $47,811,900; 1949, $33,008,000.

Industrial — 1950, $14,697,000; 1949, $9,536,700.

Engineering — 1950, $38,436,900; 1949, $12,957,900.

CANADA *(Continued from page 16)*

Architects' Building Plan Is Sought in Competition

A building for architects and by architects is planned for early erection in Toronto. It is to be the new headquarters of the Ontario Association of Architects, and the 500-odd members of the Association will be invited to submit designs in a competition to be held this fall. Prize will be the commission.

Accommodation will be required for a board room, a library, general offices and club facilities.

The Premises Committee, which is now preparing the conditions of the competition, is headed by F. H. Marani, chairman. Others on the committee are Earle L. Sheppard and W. E. Fleury. Judges will be Mr. Marani, Murray Brown and E. R. Arthur.

Steel and Lumber Pose Questions for Housing

Steel and lumber: these are the two big question marks that have government officials and construction men apprehensive.

With the prospect of a long conflict in Korea, Canada's defense plans have been stepped up. While no definite move has been made, it is feared that steel may be allocated for defense construction. And that will mean fewer bathtubs and furnaces for new dwellings.

Lumber has been in short supply for the past few months. Last March restrictions on lumber exports to the U. S were removed. In filling the huge American demand, scarcities have developed in Canada, and prices have soared. Builders report some housing developments behind schedule due to the present lumber situation. Some proposed projects may be shelved.

In an attempt to bring lumber prices back into line, the Government has postponed plans for construction of married servicemen's quarters. This action was taken when it was found that contractors' prices had risen $800 to $1300 over prices quoted one year ago. Further, the Government is not adjusting NHA building loans to cover the boost in costs. This is sure to affect some 30 joint housing schemes now under way, and may mean the end of others.

Some experts see in the expected slowing down of U. S. housebuilding due to war demands the possibility of an easing of the tight lumber supply. One group who fervently hope this is true is the manufacturers of prefabricated summer cottages, houses and garages. They are being forced to raise prices almost 10 per cent because of the lumber famine. And they face the prospect of a cutback in production of from 10 to 25 per cent.

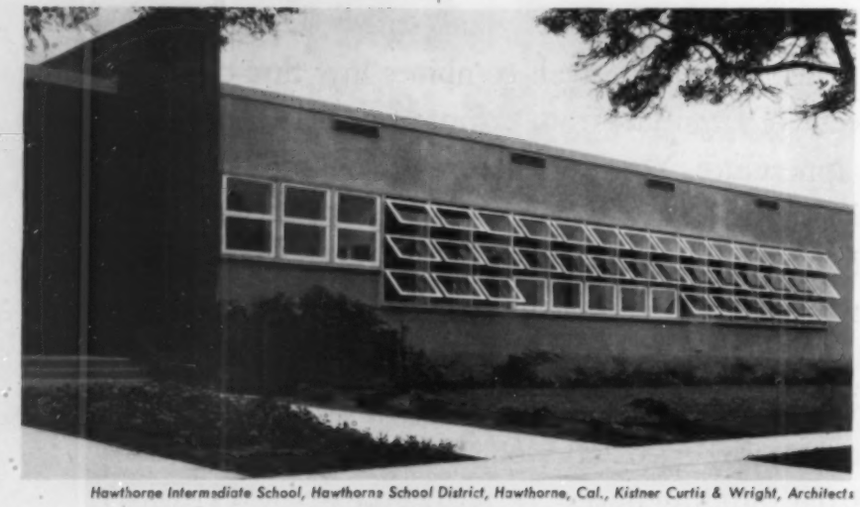
NHA Loans Set Record For Five Months of 1950

NHA loan approvals are hitting a new all-time high, according to a report from

(Continued on page 208)

better control of VENTILATION
better control of LIGHT
with *Dalmo*

AUTOMATIC MULTIPLE WINDOWS
Wood Projected Awning Type



Hawthorne Intermediate School, Hawthorne School District, Hawthorne, Cal., Kistner Curtis & Wright, Architects

DALMO WOOD
WINDOW HARDWARE
For the Nation's Schools

Dalmo Windows give full control of ventilation from 1% to 100% of the window opening. The angle of the open sash directs air currents upwards, eliminating drafts. The air diffuses from the ceiling and circulates evenly through the room. The open sash sheds rain, deflects wind and allows controlled ventilation under all weather conditions.

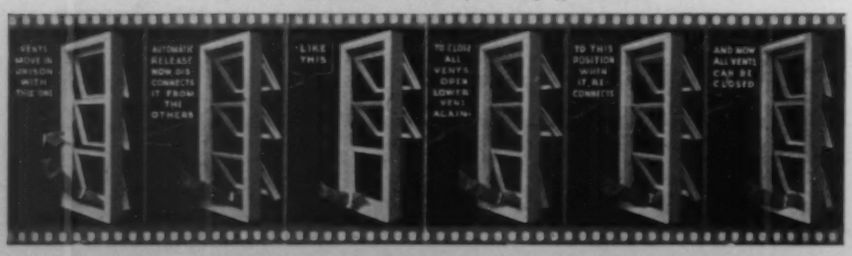
Dalmo Windows allow the use of venetian blinds or window shades. The sash can be operated without disturbing blind or shade. Window shades may be attached to the sash itself to control daylight illumination and give uniform light distribution without interfering with ventilation.

See our CATALOG in SWEET'S FILE

DALMO Continental Inc.

1304 Wilshire Boulevard, Los Angeles 17, California
Eastern Sales Office: Thorntown, Indiana

Operation of Dalmo Automatic Multiple Awning Type Window


VENTS MOVE IN UNISON WITH THIS ONE
AUTOMATIC RELEASE NOW DISCONNECTS IT FROM THE OTHERS
LIKE THIS
TO CLOSE ALL VENTS OPEN LOWER VENT AGAIN
TO THIS POSITION WHEN IT AGAIN CONNECTS
AND NOW ALL VENTS CAN BE CLOSED

HOW *to give them more* house *for the money*

with the MASONITE HARDBOARD FAMILY

You can make building dollars go further—to provide more value—if you use Masonite Hardboards. These smooth, rigid grainless panels, made from exploded wood fibers, come in 19 types and thicknesses—each with special uses and advantages. Here's why they provide more house per dollar:

HOW ***to Provide Crackproof Walls.*** These super-smooth living room walls will never crack, dent or scuff! They'll hold paint or other finishes indefinitely because they are made of Masonite ¼" Panelwood®. The cabinets have doors of Leatherwood—a Masonite Hardboard with a surface that simulates Spanish-grain leather.

HOW ***to Specify a Luxury Bathroom—at Low Cost.*** In this bathroom, Masonite Temprtile® was used for the lower walls and Masonite ⅛" Tempered Presdwood® above. Masonite Temprtile is tempered for extra durability and moisture resistance—score lines are pressed in the surface to form a 4" tile pattern. The built-in cabinets are made with ⅜" Tempered Presdwood.

HOW ***to Multiply Kitchen Efficiency.*** No need to stint on kitchen cabinets, even in the lowest cost home. These cabinets are built with economical Masonite Hardboards, ends and backs of ⅜" Standard Presdwood—cabinet doors and counter tops are of Tempered Presdwood for extra wear resistance. Walls are Temprtile.

There are 19 Types and Thicknesses of Masonite Hardboards for 1000 uses

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CANADA (*Continued from page 206*)

Photo by Belair, Kitchener

New Weber Hardware Building at Kitchener, Ont. Architects were Jenkins and Wright

Central Mortgage and Housing Corp.

In May, loans approved were 167 per cent over the same month a year ago. For the first five months of 1950, joint NHA loans approved were $58 million more than for the same five-month period in 1949.

Weber Hardware Building Completed at Kitchener

The Weber Hardware Building, recently completed at Kitchener, Ont., was designed especially for activities connected with the wholesale distribution of industrial supplies, hardware, builders' and contractors' supplies, appliances and paint (photo above left).

Architects Jenkins and Wright of Kitchener report that the design was the result of close collaboration of study and planning by C. N. Weber, president and general manager, Industrial Designer Martin Jenter of Mount Vernon, N. Y., and themselves. The required layout for efficient operation of business was completely determined before the building was actually designed.

The building just completed is the first unit of a complete new wholesale warehouse and salesroom. This section provides for the office, sales floor and shelf goods, with the office located on a mezzanine.

Construction is structural steel with reinforced concrete floors. Large areas of glass provide good daylighting and display space and "open" the building to the passing public.

University of Alberta Has Active Building Program

Edmonton's oil boom was followed quickly by a construction boom — and both are still rolling along in high gear.

Keeping right in step with the expanding city, the local University of Alberta has found its ivy-covered walls bursting at the seams.

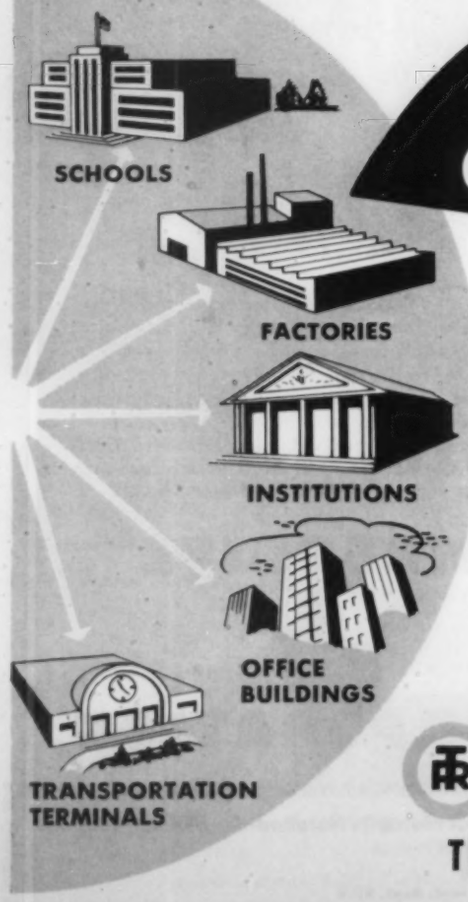
Accordingly, new buildings are appearing on campus as fast as they can be erected. In the last year, a new four-story library has been completed, as well as a students' union building, an addition to the university hospital and a cancer research center.

Altogether construction this year will reach about $6,750,000. That brings the total cost of the building program on the campus since the end of World War II to more than $8 million.

(*Continued on page 210*)

HOW TO KEEP A BUILDING *on time*

SPECIFY TIME CONTROL BY Cincinnati



Since 1896, The Cincinnati Time Recorder Company has pioneered in the development of time control and signaling equipment.

Today, whether your problem is time control for a single process or an entire building, **Cincinnati** offers a complete line of Master Control and Program Instruments — plus the services of skilled engineers to help you select the right equipment for the job.

We'll be pleased to send you complete information on Cincinnati time control equipment. Write Department AR-9.

THE CINCINNATI TIME RECORDER CO.

CINCINNATI 14, OHIO

Specify CTR to sound bells, buzzers, horns; maintain correct and uniform time on every clock and recorder; open or close electrical circuits at predetermined periods

These high-quality, low-cost Door Units take the Toughest Treatment... *and still look like new!*

STADIUM—Fenestra Entrance Doors in the Stadium at Grand Rapids, Michigan.

Architect: Wilfred P. McLaughlin, Grand Rapids

Contractor: George Datema & Sons Builders, Inc., Grand Rapids

SCHOOL—two of 135 Fenestra Metal Doors, Frames and Hardware in Robert N. Mandeville High School, Flint, Mich.

Architect: Bennett & Straight, Dearborn, Mich.

Contractor: Karl B. Foster, Flint, Mich.

SUPER MARKET—Fenestra Entrance Doors, Frames and Hardware in Eberhard's Super Market, Grand Rapids, Mich.

Same Architect and Contractor as Stadium.

A stadium entrance jammed with jostling crowds. School kids opening classroom doors with their feet. A super market seething with shoppers. In and out . . . out and in . . . all day long. That's tough treatment! And that's one of the reasons why Fenestra* Hollow Metal Doors were selected for those spots. They won't sag, warp, swell, shrink or splinter . . . an occasional coat of paint makes them look like new.

Some of the other reasons:

1. **High Quality**—Fenestra Hollow Metal Doors are made by craftsmen long skilled in steel fabrication. Each door is insulated for quiet performance. Each comes wrapped to protect the gleaming finish.
2. **Complete Unit**—Door, strong steel frame and shining hardware, designed as an attractive unit, ready to install.
3. **Low Cost**—Standardized, Fenestra Doors can be produced in great volume for maximum manufacturing efficiency. Mortising, drilling, tapping and prime painting are all done *at the factory.* To install, builders just bolt the frame together, attach frame to floor and anchor to walls, screw on template locks and hinges, hang the door.
4. **Delivery in 2-3 weeks**—Action is taken upon receipt of your order. Local stocks can usually deliver immediately.

Fenestra Doors with the Underwriters' B Label are also available. Call your Fenestra representative, listed in the yellow pages of your telephone directory or . . .

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Dept. AR-9, 2252 E. Grand Boulevard
Detroit 11, Michigan

Please send me, without obligation, information on Fenestra Stock Hollow Metal Doors.

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Company _____

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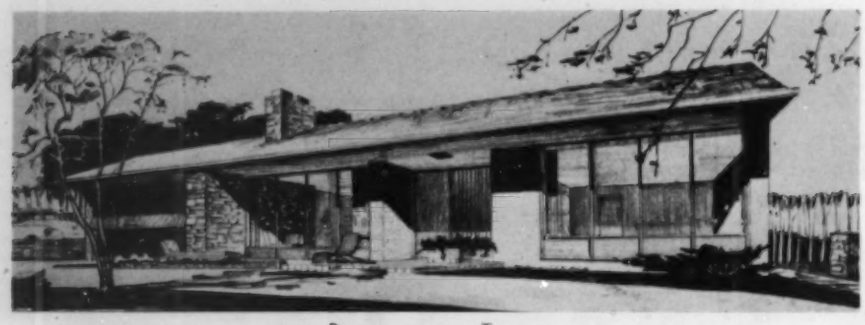
CANADA (Continued from page 208)



Residence near Toronto

Country residence for Mr. and Mrs. G. H. Eagleson, near Toronto, has a roofed-over outdoor dining-recreation area. Other features are double garage, workshop, radiant heating, fixed windows with ventilating louvers. L. E. Venchiarutti is the architect

Higher Building Costs Are Seen in New Wage Boosts

Labor demands for wage increases have won out.

In recent months Ottawa plumbers, Toronto plasterers and Hamilton carpenters have received wage hikes. Now Toronto AFL Bricklayers have won a two-year contract from the Builders' Exchange that guarantees an extra 15 cents an hour this year, another five cents next year.

The Builders' Exchange tried to hold the line, but had to give in when three or four member firms agreed to union demands. A day or so later, Toronto carpenters won a similar contract.

While this new increase will ensure two years of labor peace, it will undoubtedly mean higher building costs. And the builders' dream of a cheap, well-constructed house for the working man is farther off than ever.

Newfoundland Joins Plan for Dominion-Provincial Housing

Newfoundland is the latest province to team up with Ottawa in the federal-provincial housing scheme enacted last December.

Ottawa and Newfoundland will split costs of a 140-unit rental housing project in the city of St. John's. This will be erected for families with incomes between $960 and $3180 per year.

The province will acquire title to the lands and engage planning, engineering and surveying services. Central Mortgage & Housing Corp., a Crown company, will work on the construction of the housing units.

A local housing authority will control and operate the project when it is completed.

"Dream Home" Built to Aid Manitoba's Flood Victims

Members of Hamilton Chapter, Ontario Association of Architects, designed

(Continued on page 212)

Chase National Bank Branch, 60 East 42 Street, New York City

TAKING THE LONG VIEW

it's BETTER if it's "by BERGEN"

From any point of view, in fact.

A strong statement, but not at all exaggerated when you consider the satisfaction we have delivered to top-notch architects and "blue-chip" companies all over the country.

The modernizing job shown above, is another example of the total sum of Bergen's service. Advance planning, organizing, assembling, and aged-in-the-wood craftsmanship enabled us to begin and complete the installation over a week-end . . . without a second's interruption to business.

Everyone was mightily pleased . . . including the bank's customers! So, whatever your point of view, you can be sure it will be better if it's "by Bergen".

Write to Dept. A for our Portfolio of "Jobs Well Done." It's worth seeing.

Bergen-sure the success of your modernization program with

BERGEN CABINET

Architectural woodwork that makes the designer's plan an enduring reality

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What's Your "GUESS-TIMATE"

OF THE UNIT COST OF THE HEATING SYSTEM FOR THIS SCHOOL

6½ UNIT SCHOOL
Elderton, Pennsylvania

MY GUESS IS:

$_____PER UNIT

NOTE YOUR ESTIMATE HERE

THEN SEE HOW CLOSE YOU CAME!

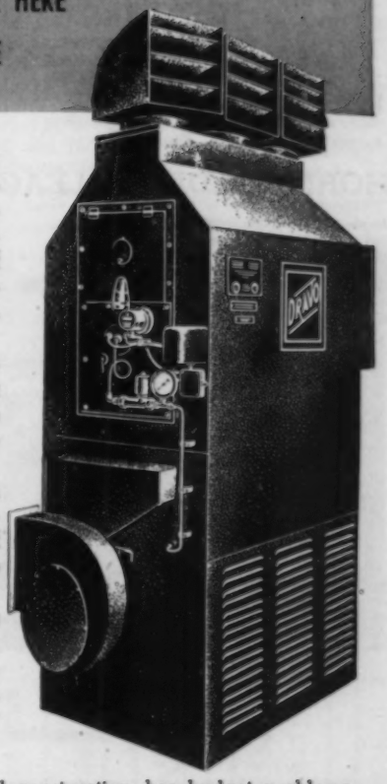
High heating costs took a real body blow in this Western Pennsylvania supplementary high school, completed in 1949.

Usual heating costs for the conventional wet-type system generally run around $1500 per unit. By using an efficient warm air system with a Dravo *Counterflo* Heater, ventilating requirement of 15 cu. ft. of fresh air per pupil per minute was met, adequate warmth was assured, and the cost was cut to $860 per unit!

This remarkable saving was possible because the Dravo Counterflo Warm Air Heater reduces the job to its simplest basic terms. Where most systems *end up* by warming the air, this system BEGINS with it, eliminating time-lag, and thus permitting quick heat-up in the morning, and immediate adaptation to changes in mid-day demand. Winter heating and year-round ventilation functions are efficiently combined. The valves, traps, extensive piping, etc., of conventional wet-type systems are eliminated. Dependability and effectiveness are certified by the thousands of industrial and commercial applications where Dravo Heaters are currently serving.

This installation conforms in all respects to Pennsylvania Department of Public Instruction regulations. The architects were Scheeren & Rittenhouse, Kittanning, Pa.

The Dravo *Counterflo* Heater, with an output of 1,000,000 btu, was specified over-capacity, to take care of future expansion of the building. The heater is located in an 8-ft. x 12-ft. furnace room. Recirculated air is blended with air drawn from outside, and delivered through ducts, concealed in the hall ceiling to the various rooms. Gas is used for fuel; ready conversion to oil is possible.



DRAVO
CORPORATION

Almost everyone concerned with school construction has budget problems today. The Dravo *Counterflo* Heater provides a proved means of substantially reducing the item of heating cost—and at the same time meeting every comfort, safety and low-maintenance requirement. A case study analysis, which describes the Elderton school in detail, will be sent on request. Write Dravo Corporation, Heating Department, Dravo Building, Pittsburgh 22, Pennsylvania. Ask for Bulletin 560-38-468.

Dravo also manufactures the *DRAVO CRANE CAB COOLER* for air conditioning hot-metal crane cabs.

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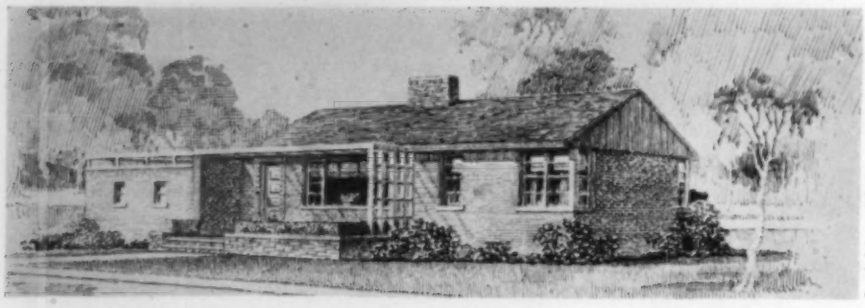
CANADA (*Continued from page 210*)



Frank Adams del.

"Dream House" designed by Hamilton architects to aid Manitoba flood relief project

the "dream home" which realized some $220,000 for Manitoba Flood Relief in a nationwide lottery (photo of rendering at left). Tickets sold at one dollar each.

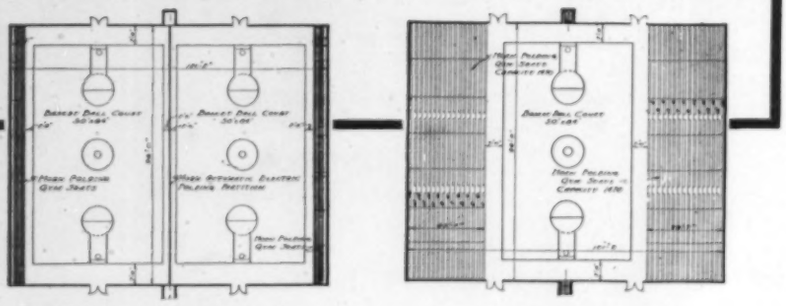
The house was erected with the cooperation of the construction industry in Hamilton. Labor and contractor organizations, supply houses and the city government all had a share in the project.

All services — architectural, labor, contractural, materials supply — were contributed free of cost, and the city gave the lot on which the house was built. On a 24-hours-a-day schedule, the house was completed in 158 hours, or little more than six and a half working days.

Working drawings as well as the design were contributed by the Hamilton architects, working as a group. The big load was carried by Architects C. J. Howard and John T. Bell.

An employee of one of the contractors who worked on the job held the winning ticket when Mayor Garnet Coulter of Winnipeg made the draw.

UTILIZE YOUR GYM SPACE WITH HORN

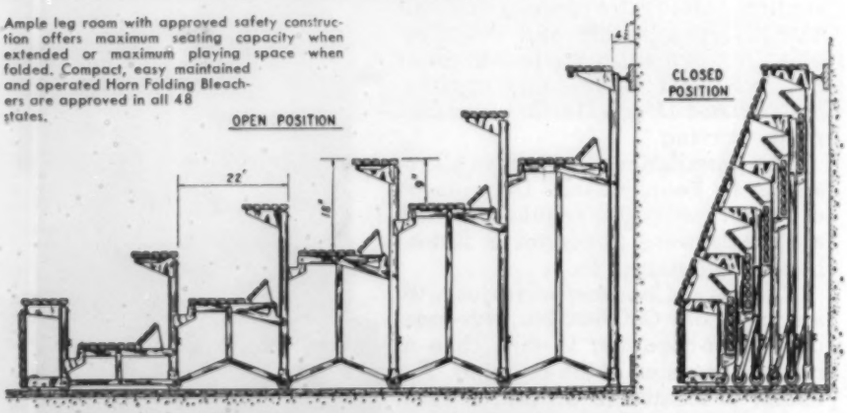


Two regulation basketball courts separated by a Horn Automatic Electric Folding Partition. Horn Folding Bleachers in folded position.

HORN FOLDING BLEACHERS extended increases the seating capacity for the BIG GAME! Horn Folding Bleachers will meet your requirements.

HORN FOLDING BLEACHERS

Ample leg room with approved safety construction offers maximum seating capacity when extended or maximum playing space when folded. Compact, easy maintained and operated Horn Folding Bleachers are approved in all 48 states.

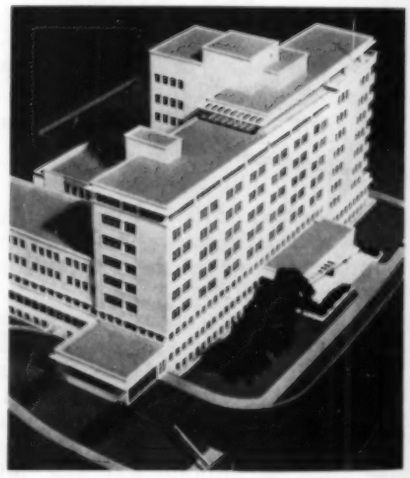


ROWS	FLOOR SPACE IN USE	FLOOR SPACE *CLOSED	**HEIGHT	ROWS	FLOOR SPACE IN USE	FLOOR SPACE *CLOSED	**HEIGHT
3	4′ 9″	1′ 8⅜″	3′ 0″	12	21′ 3″	4′ 3⅛″	9′ 9″
4	6′ 7″	2′ 0⅛″	3′ 9″	13	23′ 1″	4′ 6½″	10′ 6″
5	8′ 5″	2′ 3½″	4′ 6″	14	24′ 11″	4′ 9⅞″	11′ 3″
6	10′ 3″	2′ 6⅞″	5′ 3″	15	26′ 9″	5′ 1¼″	12′ 0″
7	12′ 1″	2′ 10¼″	6′ 0″	16	28′ 7″	5′ 4⅝″	12′ 9″
8	13′ 11″	3′ 1⅝″	6′ 9″	17	30′ 5″	5′ 8″	13′ 6″
9	15′ 9″	3′ 5″	7′ 6″	18	32′ 3″	5′ 11⅜″	14′ 3″
10	17′ 7″	3′ 8⅝″	8′ 3″	19	34′ 1″	6′ 2¾″	15′ 0″
11	19′ 5″	3′ 11¾″	9′ 0″	20	35′ 11″	6′ 6⅛″	15′ 9″

SINCE Horn 1909

*Dimension includes 4½ in. space between top seat and wall.
**Height in open position same as closed. For Bleachers higher than 20 Rows write for complete details and dimensions.

HORN BROTHERS COMPANY
DIVISION OF HORN INDUSTRIES FORT DODGE, IOWA, U.S.A.



325-Bed Hospital Is Under Construction for Toronto

Mount Sinai Hospital, a 325-bed hospital which is expected to cost five and a half million dollars including land, is under construction in Toronto (model photo above).

Kaplan & Sprachman are architects for the building, with Govan, Ferguson, Lindsay, Kaminker, Maw, Langley and Keenleyside as associate architects.

The hospital, which will be the largest building in Canada with panel heating, will have steel frame, brick and stone exterior.

Complete hospital services will be provided, including outpatient, research and teaching facilities. There will be no more than four beds in any ward. The top floor has been designed as a solarium.

Corning Alba-Lite and Fota-Lite

Advantages of Corning FOTA-LITE

A remarkable new lighting medium, Corning FOTA-LITE is flat glass with white diffusing louvers permanently embedded by a photographic process—over 100 louvered cells per square inch! The 45° cut-off is contained within the thickness of the glass ($\frac{5}{32}$″), instead of with bulky louvering materials requiring costly maintenance.

With Corning FOTA-LITE, vertical light is effectively transmitted by the glass, while the diffusing louvers eliminate glare at cut-off area. Fixtures can be made shallow and dust-tight. Strong, light in weight and free of warpage, FOTA-LITE has unlimited applications in recessed or pendant lighting fixtures, continuous row or complete luminous ceilings. Sample on request.

A few of the 189 fixtures in the executive offices of Sylvania Electric Products, Inc. that are equipped with Corning FOTA-LITE in this building.

It is significant that Sylvania Electric Products, Inc., one of the leading manufacturers of lighting equipment selected Corning ALBA-LITE and FOTA-LITE for some of its executive offices in the Mutual Life Building.

Advantages of Corning ALBA-LITE

Corning ALBA-LITE has long been recognized for its qualities of diffusion and brightness control. With an efficiency of more than 90%, even light transmission and low panel brightness, ALBA-LITE is a thin opal that is adaptable to almost any fluorescent installation.

Available in many bends as well as flat sheets, ALBA-LITE affords unlimited design flexibility. It will not warp, discolor or scratch. Easily cleaned, it does not retain finger prints and resists weathering. Widths up to 24″, lengths up to 100″. It may be used in fixtures or glass ceilings as required. Send for Bulletin LS-17 which describes this versatile lighting glassware.

One of the 22 floors of the Mutual Life Building completely equipped with Corning ALBA-LITE in recessed troffers.

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Please send ☐ complete information on Corning ALBA-LITE.
☐ complete information and sample of Corning FOTA-LITE.

Name_____ Title_____

Firm_____

Address_____

City_____ Zone_____ State_____

ACOUSTICS

(*Continued from page 151*)

should determine at an early stage the possible need for sound reinforcement. Usually, if the room is properly matched to its musical purposes, electrical amplification will not be needed for orchestra, but may be desirable for solo voices, stage shows, and perhaps for opera. Both the wide potentialities and the inherent limitations of amplifying systems should be clearly recognized by the architect and the client *in advance* of the design.

If the conditions are such that loudness cannot possibly be adequate in the room, proper provision for integration of the amplifying system should be made during the design and not as an afterthought. If, on the other hand, amplification is not desired, and if the room size and function are such that sufficient loudness can be achieved, then the room must be designed to reinforce the sound.

This includes:

(1) proper shaping of the stage enclosure to reinforce the sound.

(2) utilization of properly oriented reflecting surfaces on walls and ceiling.

(3) proper location of absorbing materials to control reverberation without obliterating useful reflecting surfaces.

Sound Distribution Requirements and Control

There are several requirements on sound distribution for good hearing conditions in rooms. Positively stated, the sound should be smoothly distributed to all parts of the room to give the greatest possible acoustic uniformity. The loudness (control of which is closely associated with that of distribution) should be adequate but not excessive at all listening points. On the negative side, the room should not have distinct echoes, flutter, undue focussing, or interference regions. An adequate working knowledge of these principles for all cases requires considerable background of information and experience, but some of the major problems can be assessed by simple rules.

An echo is a distinct doubling of a sound with more than about 1/17 second delay between the direct and the repeated component. This time delay represents a travel distance of about 65 ft. Fig. 2 shows an arrangement in plan that gives an echo from the rear wall, and a reflection from the side wall that arrives too soon after the direct sound to constitute an echo. The angles marked i and r are angles of incidence and reflection; these are equal for reflection from a large flat surface. The figure illustrates geometrical analysis that helps in looking for echoes. Such analysis should be done in three dimensions, with plans and sections.

On the other hand, reflections which follow the direct sound with less than 30 or 40 ft path difference contribute useful reinforcement if they are not stronger than the direct component. They will not generally be stronger if they reflect from a flat, convex, or irregular wall. But if they reflect from a large concave surface, they are likely to be focussed into excessively strong components.

In fact, any concave surface more than a few feet in extent is potentially dangerous. A curved rear wall of an auditorium is a common example; without some remedial treatment it gives rise to strong echoes in the middle and front sections of the room, with serious

(*Continued on page 218*)

very, very, very little noise.

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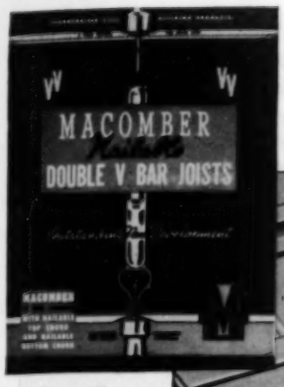

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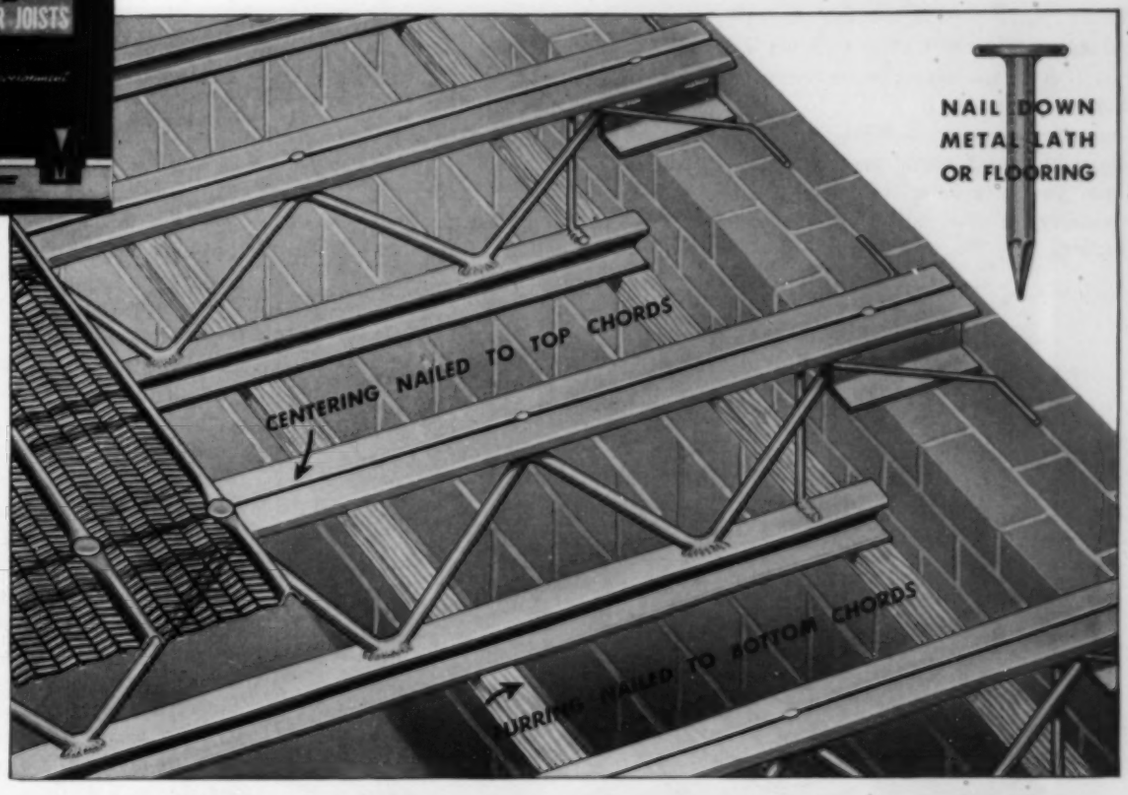
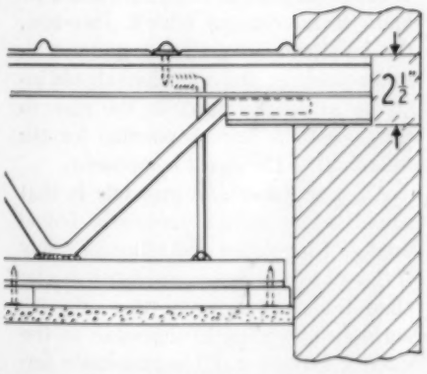


THE MACOMBER DOUBLE V JOIST



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V BAR JOISTS • LONGSPANS • BOWSTRING TRUSSES • STEEL DECK

ACOUSTICS

(*Continued from page 216*)

deterioration of tone quality and articulation. Some possible ways of modifying a curved rear wall are shown in Fig. 3. A sufficiently vigorous break-up in plan, or sloping in section to reflect the sound away are possible measures. The addition of sound absorbing material to the rear wall is sometimes necessary to give sufficient echo reduction.

The curved rear wall is usually associated with the fan-shaped plan, which is often *erroneously* believed to be a good shape acoustically. Sound striking the side walls reflects at near glancing angles and concentrates along the sides of the room. This effect, and an improved side wall shaping for uniform distribution, are also illustrated in Fig. 3. This figure further illustrates the technique of ray diagrams for studying sound distribution.

Two basic physical principles should be kept in mind in making such studies. In free space, with no reflecting surfaces, sound radiates outward like an ever expanding sphere centered on the source. Therefore the sound energy is spread more and more thinly as it recedes. The sound level drops 6 decibels each time the distance is doubled. This is called the inverse square law, since the energy diminishes as the square of the distance from the source.

Even inside a room, each small section of a sound wave diminishes in about the same way during its first passage from the source to the receiver (direct component) and during the first two or three reflections. After that the diminution of individual waves becomes submerged in the general diffusion of waves from all directions, and the sound in the room soon becomes (if it is a good room) more or less uniformly distributed throughout the room as it dies away.

The direct sound and the first few reflections are of major importance in providing loudness, definition, and articulation. The distribution of these components is therefore studied by ray diagrams, with the additional information that the sound level of any component diminishes by inverse square law. If a particular reflection has traveled twice as far as the direct ray, it will be lower by 6 decibels.

This is strictly true only if the reflecting surface is large, flat, and hard. The same distance law shows that the direct rays are weaker towards the rear of the room than in the front (which we know from common sense). Therefore, the basic rule for designing uniform reinforcement is: the reflections should increase in density towards the rear, to compensate as far as possible for the falling off of the direct component.

Another important principle is that sound waves reflect specularly (equal angles of incidence and reflection) only if the wave length is appreciably shorter than the dimensions of the reflecting surface. Wave length decreases as frequency increases: an approximate formula is: [wave length] = 1100 / [frequency.] Thus at 1100 cycles per second the wave length is about 1 ft, while at 110 cps it is about 10 ft.

Since speech intelligibility depends on frequencies as low as 200 cps, it is clear that surfaces must be quite large to count as specular reflectors of speech. When a portion of the surface is about the size of the wave length (within a factor of 2 or 3 either way) the sound is strongly scattered in many directions.

This property can be very useful.

(*Continued on page 220*)

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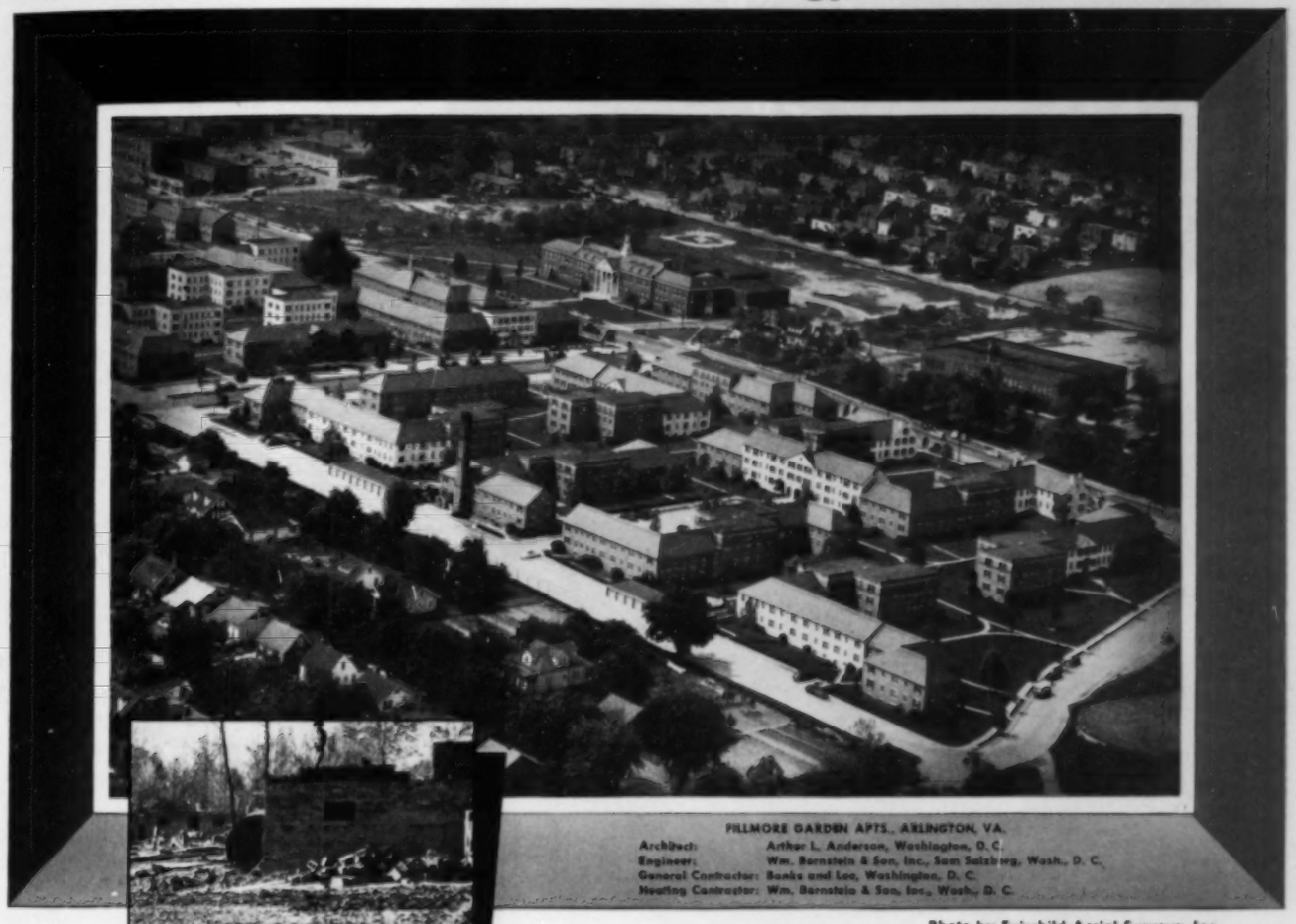

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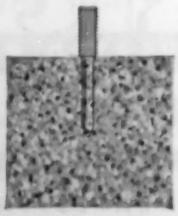


ACOUSTICS

(*Continued from page 218*)

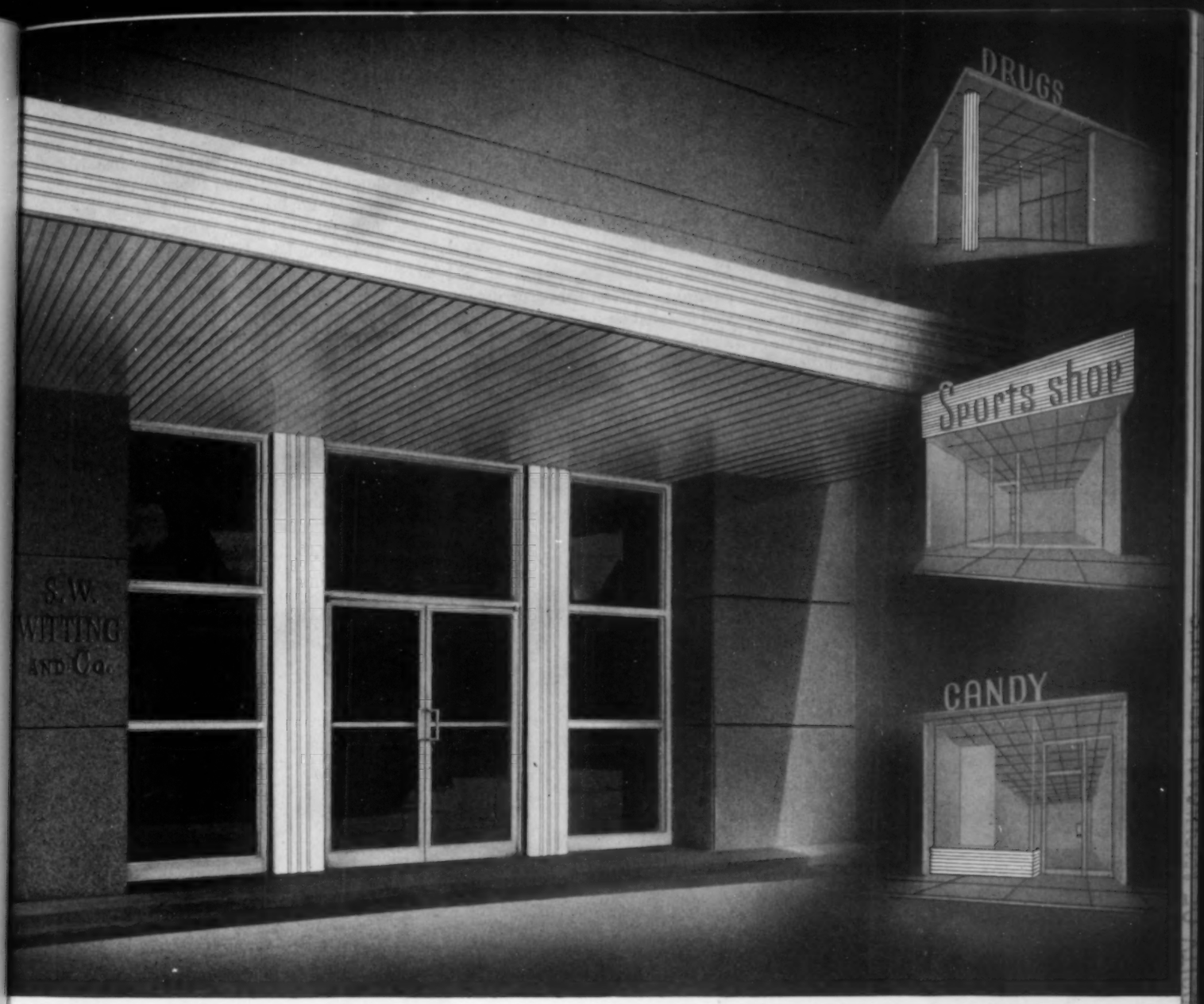
For one thing, irregularities of a few feet in dimension, wide and deep, can go far in scattering the energy from a real wall so that it will not focus (specularly) to an echo region near the front of the room. In small rooms, wall irregularities of appropriate size help to provide good diffusion. This assumes particular importance in radio and recording studios where acoustic uniformity is a major requirement. One of the photos on page 151 shows a radio studio with highly diffuse wall surfaces.

We have mentioned that flutter is a distribution fault. Flutter is the repeated reflection of a sound between opposite parallel surfaces. The phenomenon is common in small rectangular offices and conference rooms, but it can also occur between side walls in larger rooms, and even between floor and ceiling of a theater. Flutter is particularly noticeable if surfaces other than the reflecting pair are sound absorptive. Thus an absorbing material covering the ceiling, and a carpet on the floor, will make flutter pronounced in a rectangular room — at least unless there is considerable scattering by wall irregularities, furnishings, etc.

Flutter can be detected by a sharp handclap which creates a succession of distinct reflections. Both speech intelligibility and music definition suffer in the presence of excessive flutter. Flutter can be eliminated by sloping the walls, in plan or in section, so that they are out from parallel by 1 ft in 20 or steeper. Wall irregularities also reduce flutter as well as provide diffusion, and highly absorbing material on one of the offending walls can control flutter adequately.

Conclusion

We have discussed some of the essential requirements which must be met in obtaining good hearing conditions in rooms. In a subsequent article we shall consider the fourth of the design factors, reverberation control. We have pointed out some of the means of achieving here good results, although much detail has of course been omitted. It should be remembered, especially with regard to music rooms, that the criteria which have become accepted as "good" are based largely on the opinions of "qualified" listeners, and are subject to modification as more opinions are added.



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PRODUCTS
(*Continued from page 157*)

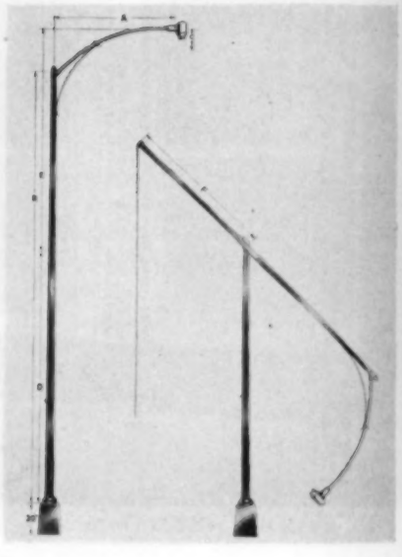
plugging-in and switching on the heat bulbs. Insulation samples and instructions are provided. Any builder, engineer, physicist, or teacher in such fields may obtain the heat tester for two weeks use by writing. There is said to be no charge or other obligation; no responsibility in case of damage. Infra Insulation, Inc., care of Mr. Michaels, 10 Murray St., New York, N. Y.

Portable Thermostat

A new thermostat, the *E-C Portable Electric Heater Thermostat*, is said to require no special wiring or permanent wall installation for use with any portable electric heater rated up to 15 amps and 125 volts. The unit is equipped with a series adapter plug for connection with the heater. A dial-set turns the current on and off to maintain the desired temperature. The thermostat has a built-in hanger at the top so that it may be moved from place to place by simply unplugging it, and lifting the unit off the hook. Electric Controls, Inc., Swan Island, Portland 18, Ore.

Hinged Street Lighting Standards

Designed to simplify the servicing and cleaning of tall street lights, a new standard incorporates a hinged section to permit the light to be lowered to street level. The hinge is fitted with a hollow pin to prevent injury to wiring insulation. The pole weight is balanced for ease of operation. When raised, the hinged section is bolted to the fixed lower section and secured with a padlock.



Street lighting standard has hinged section to facilitate servicing and repairs

The standards are constructed of 10 gage steel, and are furnished with or without a sub-base of ¼ in. steel plate. The sub-base has removable doors to facilitate installation of transformers. The units may be adapted to either multiple or series circuits. The luminaire is furnished in various sizes. Standards are available in heights ranging from approximately 22 ft to 33 ft, with mast arms extending 4, 6 or 8 ft. Revere Electric Mfg. Co., 6009 Broadway, Chicago 40, Ill.

Insulating Form Board

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(*Continued on page 226*)

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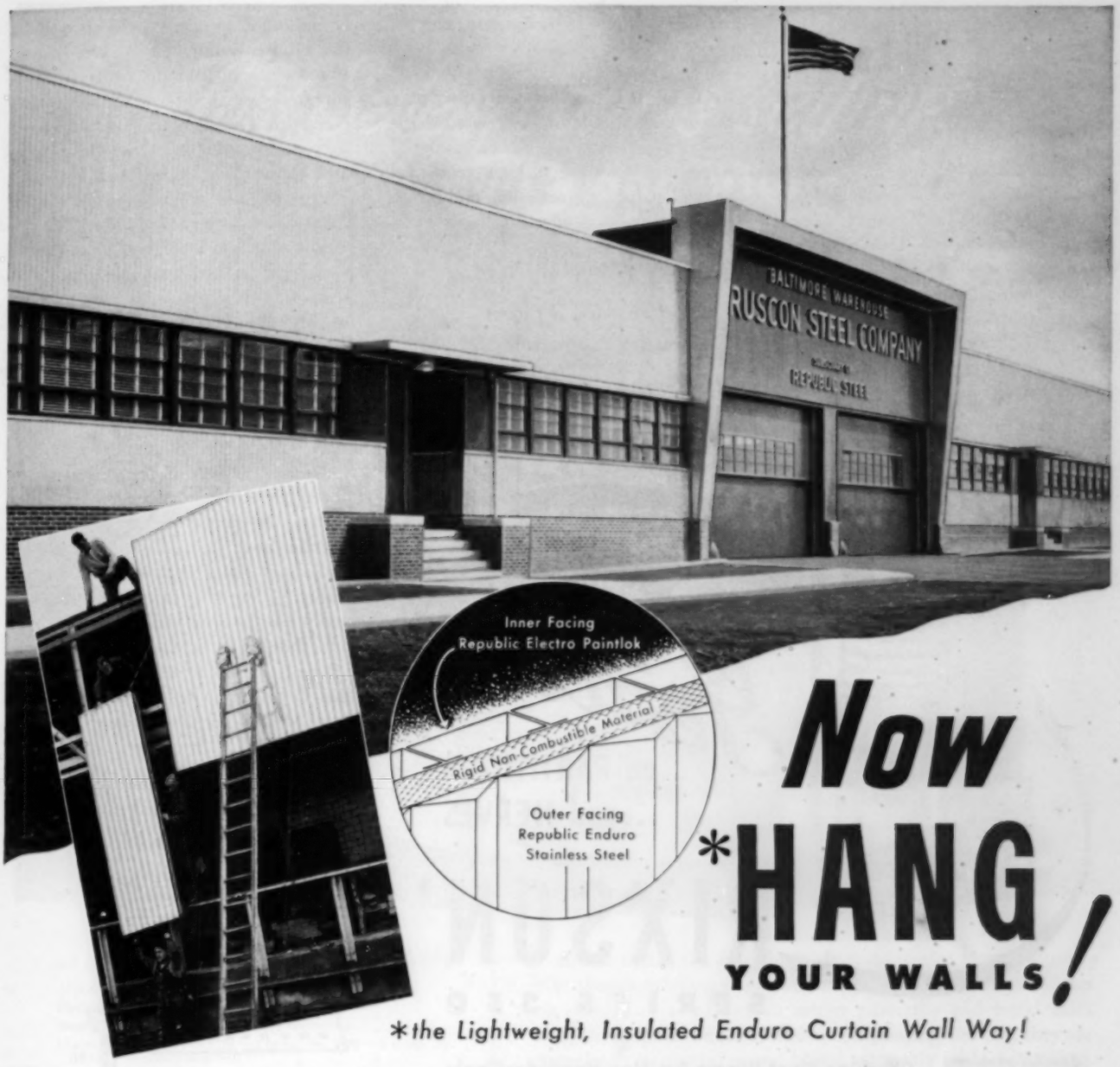

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PRODUCTS
(*Continued from page 224*)

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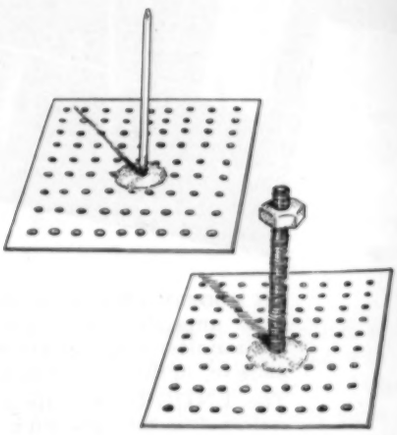

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Several other types of fasteners are made on the same principle. These include anchor bolts, hanger supports, beam clamps, insulation hangers, pronged hangers and mirror hangers. Adhesives are available for general and specialized bonding jobs. Goodloe E. Moore, Inc., Dixie Highway, Danville 1, Ill.

(*Continued on page 228*)

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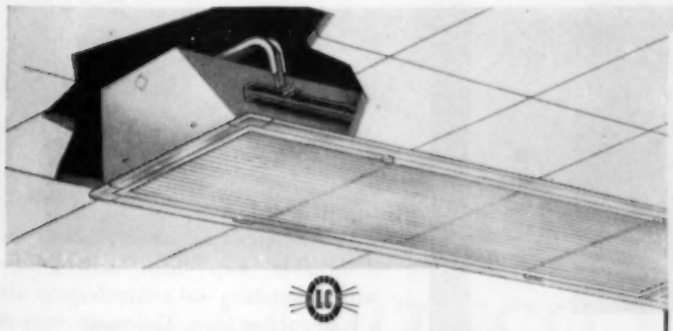

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LITECONTROL CORPORATION
36 PLEASANT STREET, WATERTOWN 72, MASSACHUSETTS

DESIGNERS, ENGINEERS AND MANUFACTURERS OF FLUORESCENT LIGHTING EQUIPMENT DISTRIBUTED ONLY THROUGH ACCREDITED WHOLESALERS

PRODUCTS

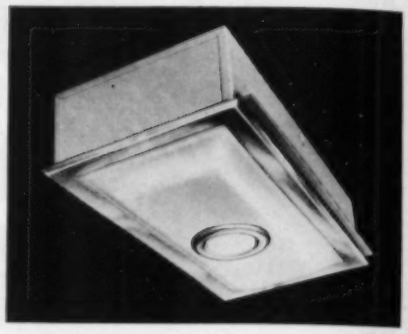
(*Continued from page 226*)

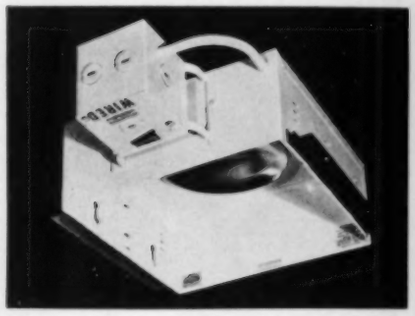
Plywood Windbreak

A new unit, designed for use as screens, windbreaks and fences, consists of vertical exterior-plywood panels, pivoted at top and bottom to swing to any desired position. The panels are said to be 4 by 8 ft in average installations. As an outer wall of a porch, such a screen permits varying light, shade or privacy. It can be closed entirely to form a solid wall. The plywood is claimed to be unaffected by weather. Waterproof adhesives are used to bond the plys. Douglas Fir Plywood Assn., Tacoma Bldg., Tacoma 2, Wash.

Lighting Fixtures

A trio of new items has been added to the *Prescolite* line of recessed lighting fixtures. One fixture (*No. 1326*) was developed for dramatic lighting of areas requiring flexible illumination effects. The unit accommodates two 150 watt lamps for bright illumination, and a type R-30 75 watt independently switched flood or spot.





Fixture (above) provides general lighting, center spotlight. Recessed housing (below) has attached wired junction box

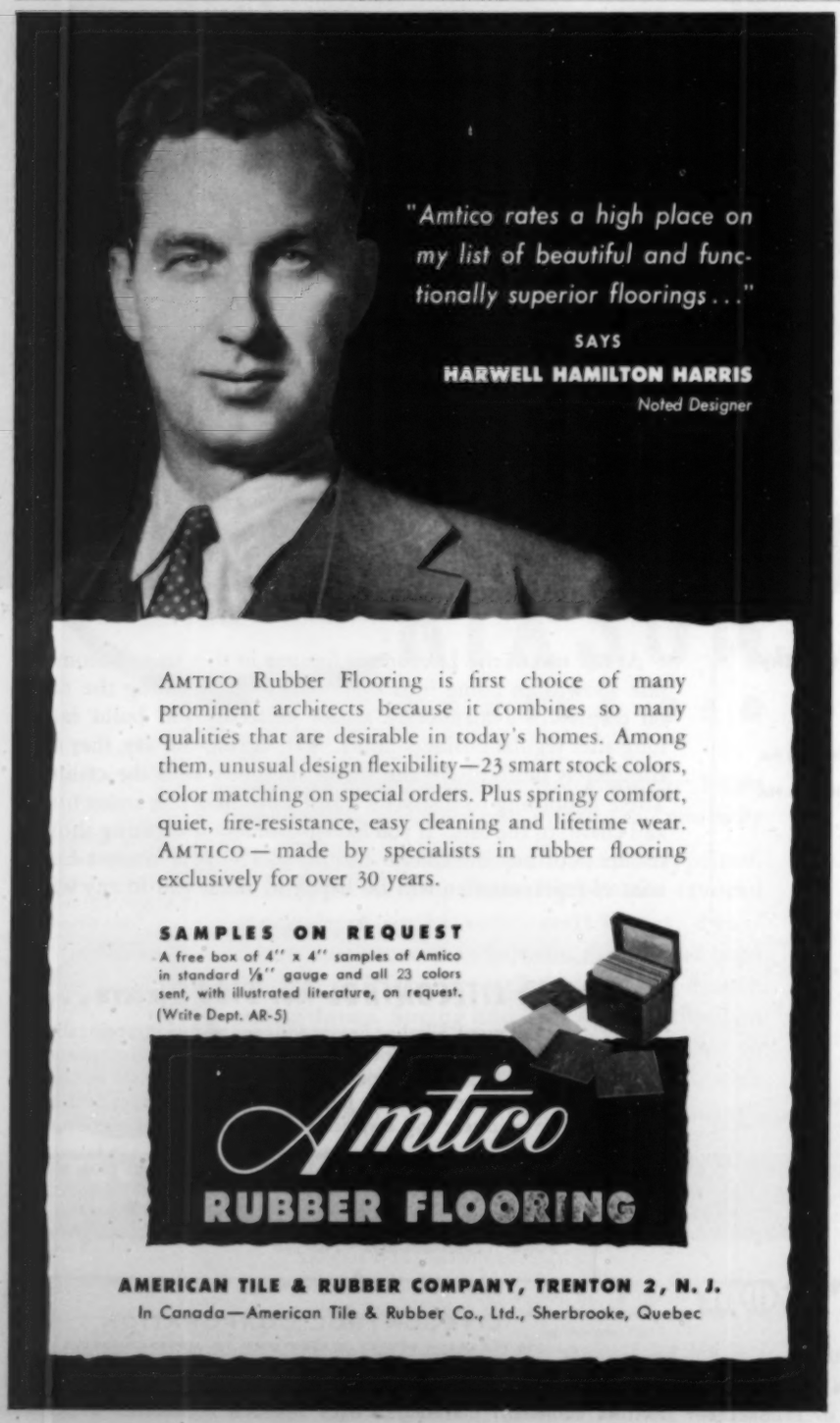
The *Fresnel Wide Angle Crystal Lens* has been produced with a fine prismatic cut for distributing light uniformly. The reverse side of the lens is satin-etched to reduce high-brightness. It is available in 100, 150 and 300 watt units.

A new fixture housing has an attached wired junction box which permits use of standard code grade building wire, instead of asbestos-covered wire ordinarily required. Hinged frames are available in the following finishes: chrome, brushed brass and satin aluminum. Four types of glass are available. Pressteel Co., Berkeley, Calif.

Sink Fitting

A new *American-Standard* sink fitting is designed with smooth surfaces for easy cleaning. The compact exposed deck-type fitting features a swinging spout with an aerator to prevent splashing; a detachable soap dish; easily-grasped winged handles; and a thumb spray with a long rubber hose. The valve seats are replaceable. The unit is designed for use with all makes of kitchen sinks, and is finished in non-tarnishing Chromard. Inlet spuds measure 8 in. from center to

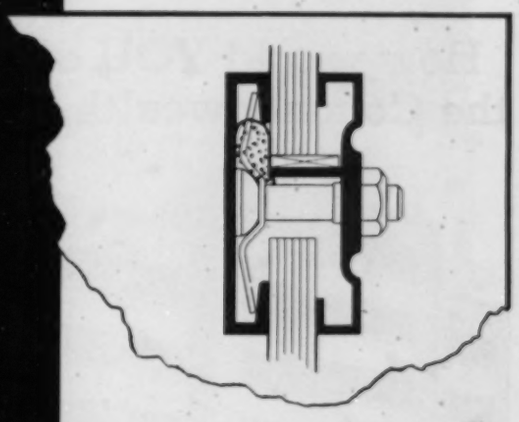
(*Continued on page 230*)


"Amtico rates a high place on my list of beautiful and functionally superior floorings . . ."
SAYS
HARWELL HAMILTON HARRIS
Noted Designer
AMTICO Rubber Flooring is first choice of many prominent architects because it combines so many qualities that are desirable in today's homes. Among them, unusual design flexibility—23 smart stock colors, color matching on special orders. Plus springy comfort, quiet, fire-resistance, easy cleaning and lifetime wear. AMTICO — made by specialists in rubber flooring exclusively for over 30 years.
SAMPLES ON REQUEST
A free box of 4" x 4" samples of Amtico in standard 1/8" gauge and all 23 colors sent, with illustrated literature, on request. (Write Dept. AR-5)
Amtico
RUBBER FLOORING
AMERICAN TILE & RUBBER COMPANY, TRENTON 2, N. J.
In Canada—American Tile & Rubber Co., Ltd., Sherbrooke, Quebec

A NEW, LIGHT-DUTY

Muntin Bar

IN PITTCO STORE FRONT METAL



● This new Muntin Bar (No. 32) was designed in answer to numerous requests for a light-duty bar. It can be reinforced with all standard Pittco stiffeners, and may be used both horizontally and vertically. A concealed connecting strap fastens intersections securely. Because of its shallow profile, this Muntin Bar is ideal for the Colonial-type store front with its small rectangular lights, and in other installations where heavy supports are not required.

Muntin Bar No. 32 possesses the same rich, satin-smooth finish, sharp profile and rigid strength found in all other Pittco extrusions.

You can examine this bar and all the principal Pittco members in the Pittco Metal Sample Case, which our representative will gladly show you. See Sweets Architectural Catalog for the address of our nearest office.

PITTCO STORE FRONT METAL

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY

PRODUCTS
(*Continued from page 228*)

center, are threaded inside, and are ½ in. diam. American Radiator & Sanitary Corp., Pittsburgh, Pa.

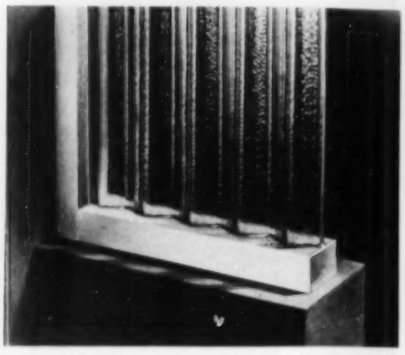
Folding Stage

The *Horn Folding Stage* is designed to provide an easily stored platform for use in schools, stores, lodge halls, etc. The unit is made of wood sections, supported by a telescoping steel understructure. Mounted on rollers, the unit is mobile whether open or closed. Floor stops can be engaged to insure no movement. It may be used completely or partially opened.

Stages are available in various widths from 6 to 16 ft. Standard heights are 15 and 24 in. Depths are available up to 35 ft, depending on the number of sections. Several of the units can be used in combination for greater stage space. The wood floors are of clear vertical grain fir ¾ in. thick, finished with Bakelite sealer. The steel understructure is enameled in brown. Folding partitions and bleachers are available also. Horn Brothers Co., Fort Dodge, Iowa.

Extruded Moldings for Structural Corrugated Glass

The *Stelzer* extruded moldings of alumilited satin-finish aluminum are designed to promote wider use of structural corrugated glass. One, the *Snap-on Molding* is for exterior sash. Another, the *Screw-on Molding*, is for corrugated glass partitions. In either construction,



Simple aluminum moldings are designed for use with structural corrugated glass

the glass panel is "cushion-set" by rubber-gasketed adapters. The installation is then finished with an aluminum colored caulking. Jambs, sills and end plates are simple and neat in design. O. E. Stelzer, P. O. Box 715, South Bend, Ind.

Emergency Exit Lock

The *Hunter Exit Lock* is a door locking device, to be installed on the inner side of a door, which may be opened by pressing a lever that breaks a thin glass and actuates the unlocking device. A mechanically operated bell rings when the door has been so opened. By use of a key, the door can be opened from the inside by authorized persons. It is claimed to be burgler and tamper proof. It cannot be opened from the outside. The unit is automatic and needs no wiring. The bell can be set to ring or remain silent.

The lock weighs 5 lb, and is made for either left or right side of door. Each comes with a pair of keys, two extra glass plates and instructions for installing and maintaining. Hunter Lock Co., 1109 S. Robertson Blvd., Los Angeles 35, Calif.

(*Continued on page 232*)

How would YOU air condition the Commonwealth Apartments?

If you had been planning this brilliant new building, on Chicago's Gold Coast, how would you have arranged to provide "tailor-made" cooling for each of the apartments on hot, muggy summer days . . . and individual heating for winter through the same system? Architects Howard T. Fischer & Associates and John A. Pruyn had a ready answer. 131 *Modu-aire* Units by usAIRco . . . a system which has also been specified for cost-conscious builders of office buildings, hotels — all types of multi-room structures.

So the Commonwealth Apartments are front-page news in architecture — one of the *first* multi-apartments in Chicago with complete year round air conditioning.

The amazing new usAIRco Modu-aire is an air conditioning system that provides individual room control of heating or cooling. Copper piping distributes chilled water from a central system to each Modu-aire unit. Dial control on each room Modu-aire gives the occupant the kind of weather he likes in summer or winter.

In the *new* Commonwealth Apartments neither the Architects nor the Schwartz Bros. firm of air conditioning contractors had to worry about structural handicaps, but hundreds of *existing buildings* now converting to air conditioning, find usAIRco Modu-aire the simple solution to a serious problem. Modu-aire installation needs no complicated space-wasting duct-work. Modu-aire goes in easily . . . it operates simply.

It's truly luxurious air conditioning engineered for practical application everywhere. Why not wire or write us before you draw up your next specifications. United States Air Conditioning Corporation, Minneapolis 14, Minn.

MODU-aire . . . . . by

usAIRco

Engineers and manufacturers of air conditioning, refrigeration, unit heaters, coils and ventilating equipment

NATIONAL Pipe gets first call for the United Nation's "Secretariat" Building

IN this 39-story skyscraper, the first structure in the permanent home of the United Nations, more than 400 tons of steel pipe were supplied by NATIONAL Tube Company. 178 tons went into the heating and air-conditioning systems, 208 tons were used in the plumbing lines, 23 tons serve as stair hand railings.

NATIONAL Pipe, produced by the world's largest maker of tubular products and used almost exclusively in this important building, is the same NATIONAL Pipe that has been giving uniformly good service for more than sixty years in all types of buildings throughout America. Constantly improved, thoroughly dependable, NATIONAL Pipe offers the most service per dollar of cost.

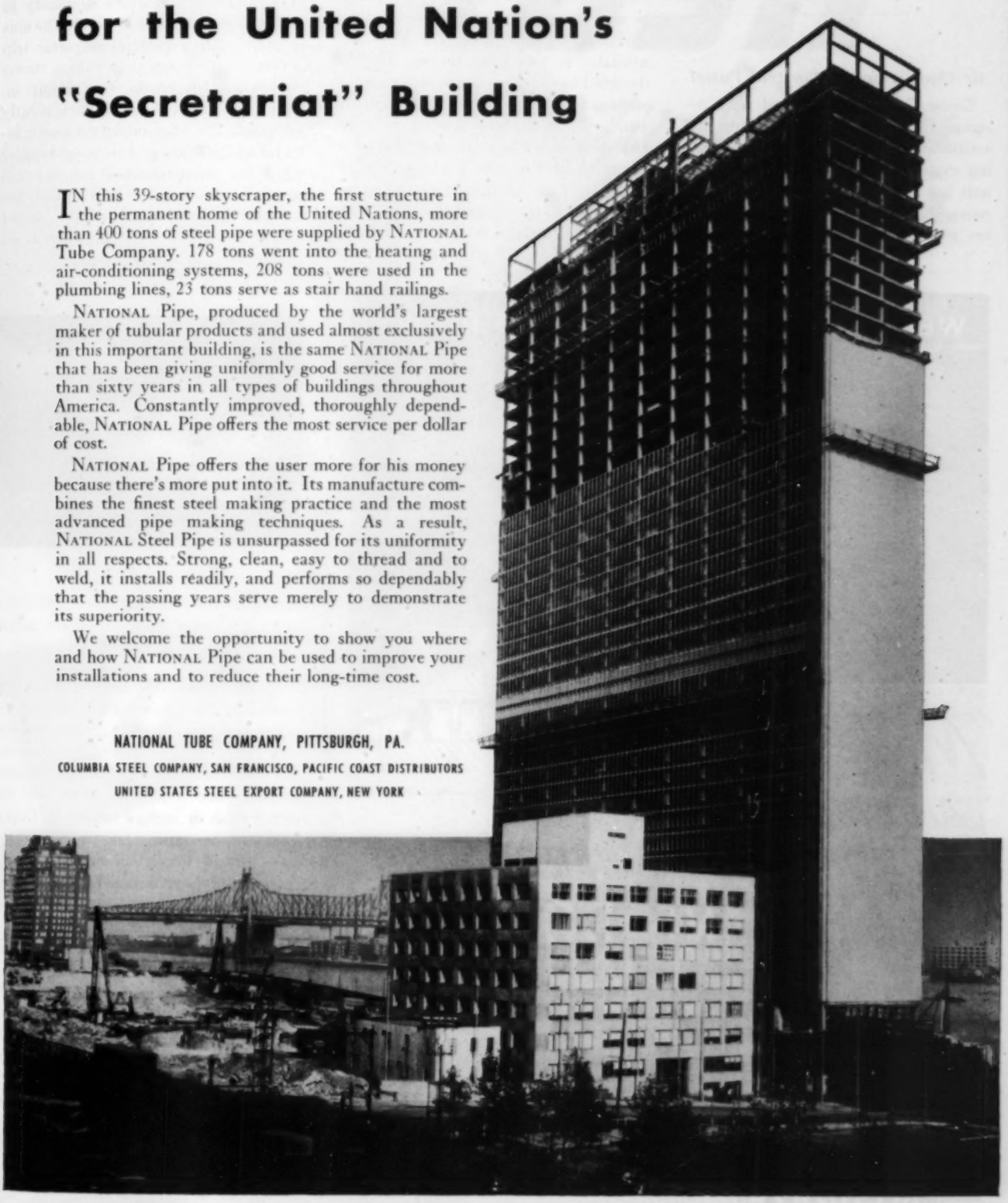
NATIONAL Pipe offers the user more for his money because there's more put into it. Its manufacture combines the finest steel making practice and the most advanced pipe making techniques. As a result, NATIONAL Steel Pipe is unsurpassed for its uniformity in all respects. Strong, clean, easy to thread and to weld, it installs readily, and performs so dependably that the passing years serve merely to demonstrate its superiority.

We welcome the opportunity to show you where and how NATIONAL Pipe can be used to improve your installations and to reduce their long-time cost.

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

COLUMBIA STEEL COMPANY, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS

UNITED STATES STEEL EXPORT COMPANY, NEW YORK



USS TRADE MARK

NATIONAL Steel PIPE

UNITED STATES STEEL

PRODUCTS

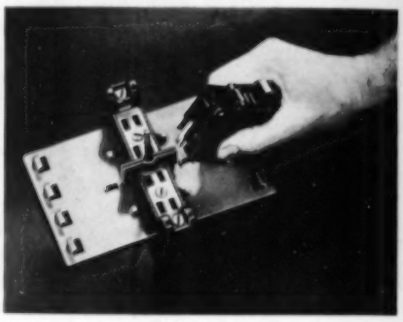
(*Continued from page 230*)

Air Conditioning Control Panel

Center-Trol is a packaged unit designed to control heating, cooling and ventilating features of an air conditioning system from a central point. The unit has a flush mounting cabinet with removable door and trim. On the door are mounted the various nameplates, pilot lights and selector switches. Behind the door, the relays and master terminal block are mounted. The panel is said to simplify greatly installation wiring and maintenance. The units are available in two basic models. One is designed to control a single area or zone within a building. The other controls two areas. Units are finished in gray baked enamel. The single unit measures 16 by 16 by 4 in., the double one is 26 by 18 by 4 in. All trim is 2½ in. wide. Custom Electric Controller Co., 119 Cross St., Harrison, N. J.

Circuit Breakers

Stab-lok is a new circuit breaker, plastic cased, which features simplicity in mechanical design and low cost. The unit is built with a thermal-magnetic trip action. In the magnetic action, a strong electro-magnet breaks the circuit instantly when its current rating is greatly exceeded. The thermal action uses a bimetal which flexes and trips the breaker when its pre-determined current-time rating is exceeded. The breakers are said to pass harmless momentary current surges, but break the circuit when shorts or dangerous overloads occur.



Simply constructed circuit breakers snap in bussing, have thermal-magnetic action

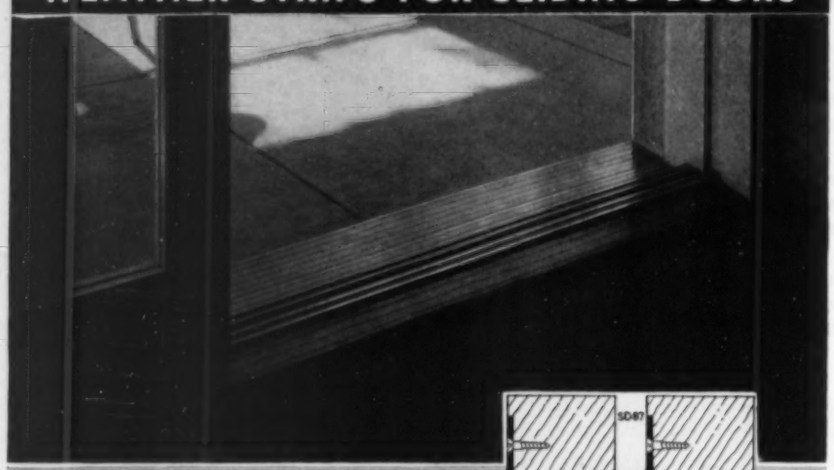
Single and double pole breakers are available. Each is designed with 4-way stabs which simply snap into the proper slot in the bussing. No tools or screws are required. Nine types of enclosure housings are available. Most can be either flush or surface mounted. Every enclosure has an insulated neutral. Devices suitable for service entrance equipment have a groundable neutral. Federal Electric Products Co., 50 Paris St., Newark 5, N. J.

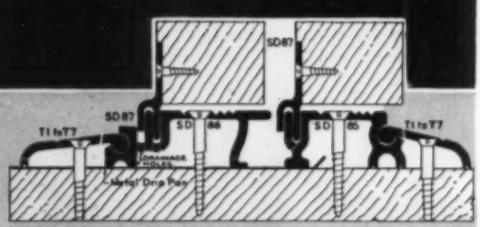
Air Conditioning Calculator

The *Calculator Slide Rule* is said to determine accurately the important properties of air such as are usually obtained from a psychrometric chart. Two sets of scales are incorporated to determine dry bulb, wet bulb and dew point temperatures when only two are known, or when one is known together with relative humidity. Windows on the back side of the unit give such properties as sensible heat, volume, total heat, grains of moisture, latent heat, volume of vapor and vapor pressure. A table of conversion factors also is included. Calculator Specialties Co., 122 S. Michigan Ave., Chicago 3, Ill.

(*Continued on page 234*)

WEATHER STRIPS FOR SLIDING DOORS





SADDLE NO. 850-A FOR ONE OR TWO PAIRS OF SLIDING DOORS

MORE AND MORE PROPERTY OWNERS WANT SLIDING DOORS

Doors that lead outdoors. Doors that need no "swing back" wall space. Doors that are 100% weather and termite proof. *But,* doors that glide open and shut smoothly, quietly, easily.

"Accurate" patented Metal Weather Stripping for sliding doors definitely answers every requirement. All over America, "Accurate" Sliding Door Weather Stripping is the recognized material to do this job *right.*

ACCURATE

Write us for working drawings to fit your immediate needs. Or, if you prefer,

ASK FOR ILLUSTRATED FOLDER

ACCURATE METAL WEATHER STRIP CO., Inc.

215 EAST 26th STREET, NEW YORK 10, N. Y.

THRUSH

Vertical FLOW CONTROL VALVE

WITH AIR TUBE

Threaded Union for Steel pipe or Solder Union for copper pipe as ordered.
FLOW
THRUSH FLOW CONTROL VALVE PAT. RE. NO. 19873
TO TANK
OPEN
Lever Adjustment.

a New Design

TO SAVE FITTINGS, SIMPLIFY INSTALLATION

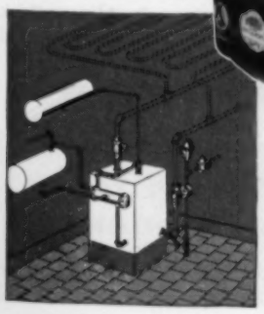
HERE IS the Vertical Thrush Flow Control Valve. It has the same proved dependable construction and offers all the advantages of the angle type Thrush Flow Control Valve, but in many installations the vertical valve will save fittings and simplify installation. Like the standard valve, it provides both flow control and air elimination without requiring any "air tube" fitting. The air is automatically separated as it rises from the boiler water and vented directly into the pressure tank. Water free of air passes up inside the tube.

YOU SAVE installation time and assure better heating plant operation for your customer when you install Thrush "T" Flow Control Valves. If you are not familiar with the Thrush Flow Control System and heating specialties, see our catalog in Sweet's or write department J-9.

Available with or without brass air vent tube.

With or without vent tube.

Angle type Flow Control Valve.



Thrush Horizontal Water Circulator.

H. A. THRUSH & COMPANY, PERU, IND.

Depend on FAR-AIR for better air filtration...

Your air conditioning system depends on proper air filters for its long service life and efficient operation, yet the filters account for only a small percentage of the entire system's total cost. The very best filters made — FAR-AIR — cost a little more than ordinary types but they're worth far more because *they have no equal* in efficiency, dirt-holding capacity, ease of cleaning and quality of construction. Install Far-Air Filters now and take advantage of their over-all economy while enjoying better air filtration. Write for complete information.

Users of FAR-AIR Filters include:

Carnation Co.
Eastman Kodak Co.
Monsanto Chemical Co.
Westinghouse Electric Corp.
Wm. Wrigley, Jr. Co.

FAR-AIR FILTERS
"Better by Farr"

*Trade Mark Reg.

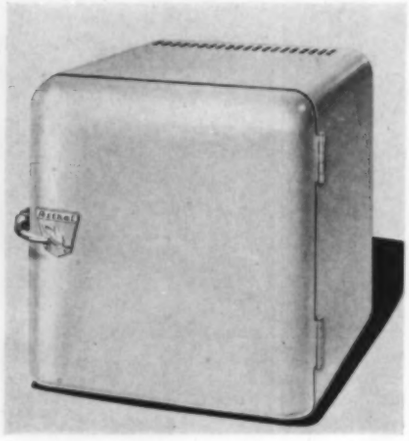
FARR COMPANY
Manufacturing Engineers
Los Angeles • Chicago • New York
Mf'd under license by
Control Equipment Co., Ltd., Montreal

Architectural Engineering

PRODUCTS
(*Continued from page 232*)

Compact Refrigerator

The *Astral Refrigerator* measures slightly less than 2 by 2 by 2 ft and weighs approximately 60 lb. It was designed for use in apartments, cottages, motels, sick rooms, offices, etc. The unit operates on the heat-absorption principle. The sole activating element is a small cylindrical 95 watt electrical heating device, which operates on 110-15 volt AC current of any cycle, or on 32 or



Small new refrigerator measures less than 2 ft in each dimension, weighs 60 lb

12 volt DC current. Operation is claimed to be totally noiseless and vibration-less. The cabinet is of heavy-gage steel, porcelain enameled; the interior is aluminum finished in baked-on enamel. Three-in. batt insulation is said to enable the unit to maintain a 50 deg temperature differential between room and storage compartment. Astral Industries, Inc., Rockleigh, N. J.

Horizontal Flow Checks

The *Taco Horizontal Flow Check* is a small unit designed to prevent hot boiler water from flowing to a heating system when the circulator is not running, thereby permitting the boiler to be used for domestic hot water both summer and

(*Continued on page 236*)

East Side High School, Paterson, N. J. Protected with Minwax Caulking Compound, Weathercap, Colorless Transparent.

Stop that Leak *before it starts!*

• From the moment a building is erected, the elements begin seeking a way to enter. That's why it is so important for the architect to include the proper protective treatment in his specifications.

Since each structure presents an individual problem, competent advice should be sought. The correct type of materials should be used, and application should be done by an experienced, reliable contractor.

Architects who have taken advantage of the Minwax Waterproofing Information Service through the past 42 years, have found it a most reliable source of help, not only as to analysis, but also for recommendation of materials. When requested, names of experienced contractors are furnished.

A call to Minwax on your next project will demonstrate the value of our service. There's no obligation. Please address Minwax Co., Inc., Dept. AR-9, 11 W. 42 St., New York 18.

SEE OUR CATALOG IN SWEET'S

SEE OUR CATALOG IN SWEET'S

See Sweet's for full product information about Minwax Clear and Colorless Protective Treatments, Caulking Compounds, and Minwax Weathercap for masonry joint protection: also Minwax Brick & Cement Coating, Membrane and Spandrel Waterproofings.

TRADE MINWAX MARK

A COMPLETE WATERPROOFING SERVICE

In a City of Beautiful Buildings

Celotex Roof Insulation is proving itself where it counts most: ON THE JOB!

KASS BUILDING, WASHINGTON, D. C.
specified Celotex Roof Insulation

Architect: James F. Hogan

Roofing Contractor: Easterday-Duckworth Company
Owner and Builder: Kass Realty Company, Inc.

Only the finest of materials were specified for the ultra-modern Kass Building — one of the newest office buildings in the nation's capital. Among these, naturally, was Celotex Roof Insulation.

There's a type of Celotex Roof Insulation for every job

REGULAR — for efficient insulation at lowest cost.

PRESEAL — with asphalt coating for extra moisture protection.

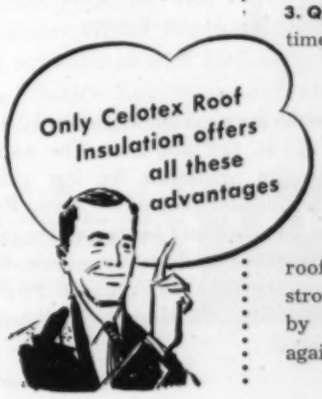
PRESEAL "30" — with asphalt coating; special low density core; guaranteed 0.30 conductance for nominal 1" thick material before coating.

VAPOR-SEAL — with asphalt coating; guaranteed 0.30 Btu conductance for nominal 1" thick material before coating; and patented recessed edges that form channels which help prevent roof blisters by equalizing the pressure of air trapped under roofing.

In roof insulation, as in everything else, *the payoff is in performance!* And no other roof insulation can challenge the *job-proved* record for quality, durability and economy set by Celotex Roof Insulation through over 25 years of actual use in all types of installations, all over the country.

Celotex Roof Insulation is low in initial cost, easy to handle, exceptionally durable. It speeds application, reduces labor costs, helps assure a superior, long-lasting roof that requires less maintenance.

So why take risks with untried materials? For complete satisfaction, always specify Celotex Roof Insulation. There's a type to meet every job requirement. Write now for complete technical data! The Celotex Corporation, Dept. AR-90, Chicago 3, Illinois.



1. High Insulating Efficiency means greater comfort the year 'round, plus reduced heating and air conditioning costs.

2. Low in Cost all three ways: initial, applied, maintenance.

3. Quick, Thrifty to Apply: installed with less time, work and cost because it's light and easy to handle. Strong and rigid—doesn't have to be "babied" on the job.

4. Provides Excellent Bond for hot mopped roofing felts of either the asphalt or coal tar pitch type.

5. Durable, Long-Lasting. It is the *only* roof insulation made of long, remarkably strong Louisiana cane fibres—and protected by the *exclusive* patented Ferox® Process against dry rot, fungus and termites.

It pays to specify genuine

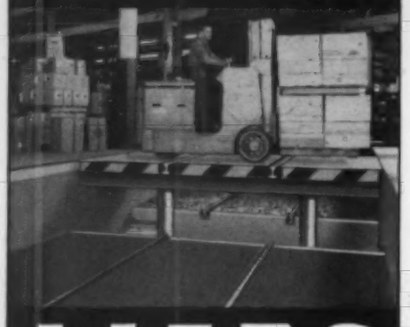
CELOTEX
REG. U. S. PAT. OFF.

ROOF INSULATION

The Celotex Corporation
Chicago 3, Illinois

GLOBE

BRIDGE



LIFTS

GLOBE ENGINEERED EQUIPMENT

Short-cut trackage bottlenecks on your clients' loading docks.

Level the flow of goods from dock to dock with this Globe Bridge Lift. Provides short cut over tracks — saves trucking around the track bay. Push button control lowers platform to track level for passage of freight cars — or raises platform for dock-to-dock traffic. Supports loads up to 20,000 lbs. Double traffic lanes if desired. Send coupon for full details.

Globe's experienced Lifting Engineers are at your service for estimates or suggestions on any lifting or materials handling problems. No obligation.

Mail coupon today for Bulletin A 950, showing details on the Globe Bridge Lift and the complete line of Globe Industrial Lifts and Elevators.

MAIL COUPON NOW

GLOBE HOIST COMPANY
1000 E. Mermaid Lane, Philadelphia 18, Pa.

Please send Bulletin A 950 showing illustrations, specifications of Bridge Lifts, Self Leveling Ramps, Elevators, Lifting Platforms and other equipment.

Company.....

Name.....*Title*.....

Street.....*City*.....*State*.....

GLOBE HOIST COMPANY
Des Moines 6, Iowa — Philadelphia 18, Pa.

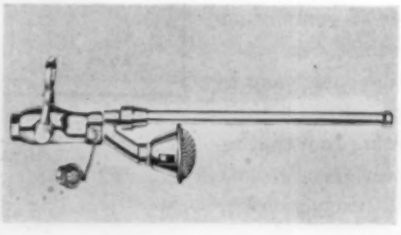
PRODUCTS

(*Continued from page 234*)

winter. The unit is said to have accurately machined weight and seat. Spring cushion and all working parts are bronze. The adjusting lever has three positions: open, closed and normal. The seat is said to be cleaned easily by moving the adjusting lever up and down with the circulator running. The checks are available in the following sizes: 1, 1¼, 1½, 2, 2½ and 3 in. Taco Heaters, Inc., 137 South St., Providence 3, R. I.

Fire Fighting Device

The *Rockwood Type SG-48 WaterFOG Nozzle*, fitted with a *Type FF FOAM Extension* is said to handle any type of fire in ordinary combustibles, flammable liquids or materials that can be extinguished with water alone or water mixed with foam liquid. The unit gives five different kinds of discharge: high or low velocity water fog; solid water stream; fog foam; and solid foam stream. Foam liquid can be mixed automatically with water and supplied to the new extension by means of a hose line Foam Eductor.

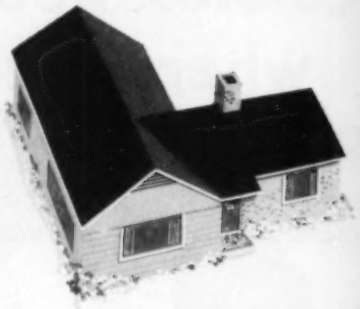


Nozzle with extensions gives five kinds of discharge for fire fighting

Nozzles are available for use on ¾, 1, 1½ or 2½ in. fire hose lines. The standard extension applicator for low velocity water fog and the new FF Foam Extension have bayonet joints and are said to be attached easily to the nozzle. Rockwood Sprinkler Co., Portable Fire Protection Div., 38 Harlow St., Worcester 5, Mass.

(*Continued on page 238*)

No home is modern



. . . unless it's cool in hot weather!

Hunter Package Fan gives cool comfort on hottest nights

■ Throughout the nation, home owners are finding that no modern convenience gives them as much comfort as a Hunter Attic Fan. It drives out stale, humid air and fills every room in the home with cool, invigorating breezes.

Installation of Hunter's new, compact Package Attic Fan is simple and inexpensive. Fan, motor, suction box and shutter furnished complete—requiring only a ceiling opening and less than 18" clearance in attic. Four models, ranging from 4750 CFM to 9500 CFM, to fit any home size and climate. Quiet, powerful, dependable. Manufactured by Hunter, exclusive fan makers for over 64 years.

Write for complete installation manual, "How to Cool for Comfort." Hunter Fan and Ventilating Co. 396 S. Front St., Memphis, Tenn.

Hunter

PACKAGE ATTIC FANS

TRUSCON

MARK OF MERIT PRODUCTS

TRUSCON Metal Lath AND ACCESSORIES *Accepted...*

Diamond Lath
Self-Sentering Lath
Herringbone Doublemesh Lath
⅜-inch Ribplex Lath
Stucco Mesh
No. 8 Rib Steel Corner Bead
No. 49 Curved Point Base Screed With Corner Fittings
No. 72 Wide Flange Casing
No. 1 Base Screed – Flush Type
ACCEPTED
No. 700 Partition Cap
No. 604 Bull Nose Corner Bead—¾" Radius

by all Building Codes in America

Meet your local Code requirements with the fire-resistive qualities of Truscon Metal Lath and plaster. Stock Truscon Metal Lath products to fill your customers' needs for materials that are easy to erect and work over, assuring the finest quality of work in big areas, arches, coves, and intricate designs. Sell Truscon Metal Lath products for the economical 2″ and 1½″ metal lath and plaster partition system for non-bearing walls, to attain the space economy and lower building costs now imperative in the industry. All Truscon Metal Lath products are manufactured in accordance with U. S. Dept. of Commerce Simplified Practice Recommendation R344. Write for free illustrated literature.

FREE Book on Truscon Metal Lath and Accessories. Write for it. The Truscon Steel Company Manufactures a Complete Line of Metal Lath and Accessories, Including Practically All Items Necessary to Insure a First-Class Plastering Job in Any Type of Building Construction.

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Subsidiary of Republic Steel Corporation
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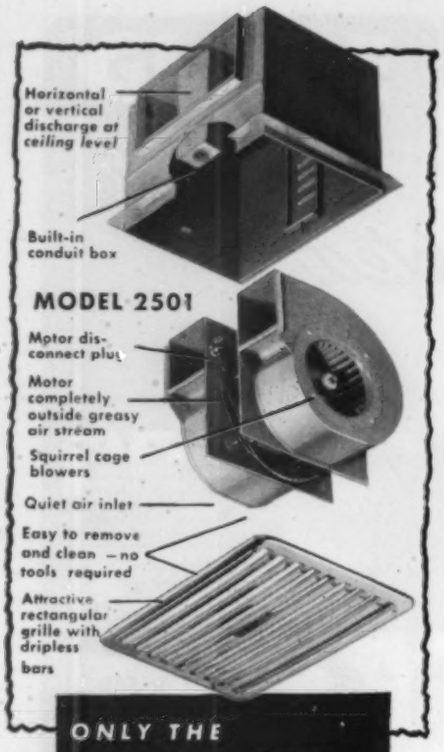
Warehouses and sales offices in principal cities


Horizontal or vertical discharge at ceiling level
Built-in conduit box
MODEL 2501
Motor disconnect plug
Motor completely outside greasy air stream
Squirrel cage blowers
Quiet air inlet
Easy to remove and clean — no tools required
Attractive rectangular grille with dripless bars

ONLY THE
TRADE-WIND CLIPPER
HAS ALL THESE ADVANTAGES

FOR the best method of ventilating kitchens, bathrooms, laundries, dens or other small rooms specify and install the Trade-Wind Clipper. This proven ventilator is the only small room unit that gives the home owner every worthwhile advantage.

Squirrel cage blowers, accepted and used in air conditioning systems and for forced air heating, are used exclusively in the Trade-Wind Clipper. This forced air discharge, located at the ceiling, traps all unwanted air and expels it instantly. Trade-Wind also has located the motor completely outside the greasy air stream. The motor stays clean indefinitely—requires far less service—and is guaranteed for 5 years. No other small room ventilator combines all these outstanding advantages. In addition, Trade-Wind Clippers are easy to install—they are competitively priced*—and they make every new owner another salesman for the Trade-Wind line.

Get the complete story from your local supply source, or mail the coupon today.

*Important price reduction has just been made on Model 2501.

MAIL THE COUPON TODAY

TRADE-WIND MOTORFANS, INC.
5707 S. Main St., Los Angeles 37, Calif.

Please send me the complete story on the Trade-Wind Ceiling Ventilator.

Name_____

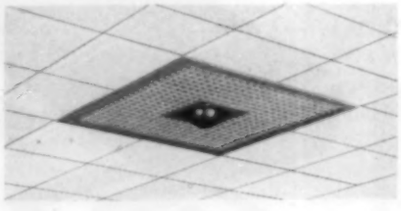
Address_____

Architectural Engineering

PRODUCTS
(*Continued from page 236*)

Lighting Fixture

Silvray Skylike, a new louvered lighting fixture, adapts silvered-bowl incandescent lighting for commercial use. The unit is claimed to have the advantages of simple wiring, light weight, fast installation and lower cost. The 90 degrees shielding prevents direct and reflected glare. The output can be varied from 2500 to nearly 10,000 lumens per unit



Louvered incandescent light fixture may be surface mounted or recessed in ceiling

by use of 150-, 200- or 300-watt lamps. The silvered reflector is permanently sealed. A top reflector is also built into the unit. Each fixture measures 24 by 24 in., and can be mounted in lines, in threes, or in checkerboard arrangement. With a semi-silvered lamp bowl and a simple accessory, it is adaptable for directional or accent lighting. Silvray Lighting, Inc., 1270 6th Ave., New York, N. Y.

Compact Water System

The compact *Aquamat* is said to provide a low cost, space-saving, one-unit water system for small houses, cabins, lodges, etc. The unit consists of a 10-gal stainless galvanized steel pressure tank with a concealed close-coupled jet pump and motor unit. The entire unit stands 27 in. high, and is 16 in. diam. It uses a horizontal type, slow speed ⅓ hp motor, and will pump 250 gal per hour from depths to 22 ft. It is delivered assembled, ready to plug into a wall socket. Operation is said to be silent. Jacuzzi Bros., Inc., Richmond, Calif.

(*Continued on page 240*)

To Control

Specify Copperized CZC

(CHROMATED ZINC CHLORIDE)

The three common causes of wood failure are almost eliminated when you specify pressure treatment with Du Pont Copperized CZC. Because this salt-type wood preservative makes wood unappetizing to termites . . . kills decay-causing fungi...gives a high degree of fire retardance, too.

And Copperized CZC does all this without changing the characteristics of wood as a building material. The treatment leaves timber and lumber clean, odorless, paintable and safe to handle.

So, where wood is indicated and permanence demanded . . . be on the safe side . . . specify pressure treatment with Du Pont Copperized CZC.

Full technical details on Copperized CZC available for the asking. Write: E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Dept., Wilmington 98, Delaware.

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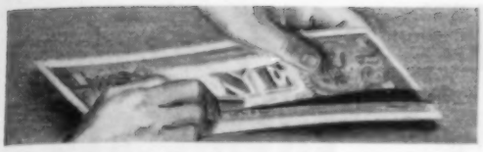
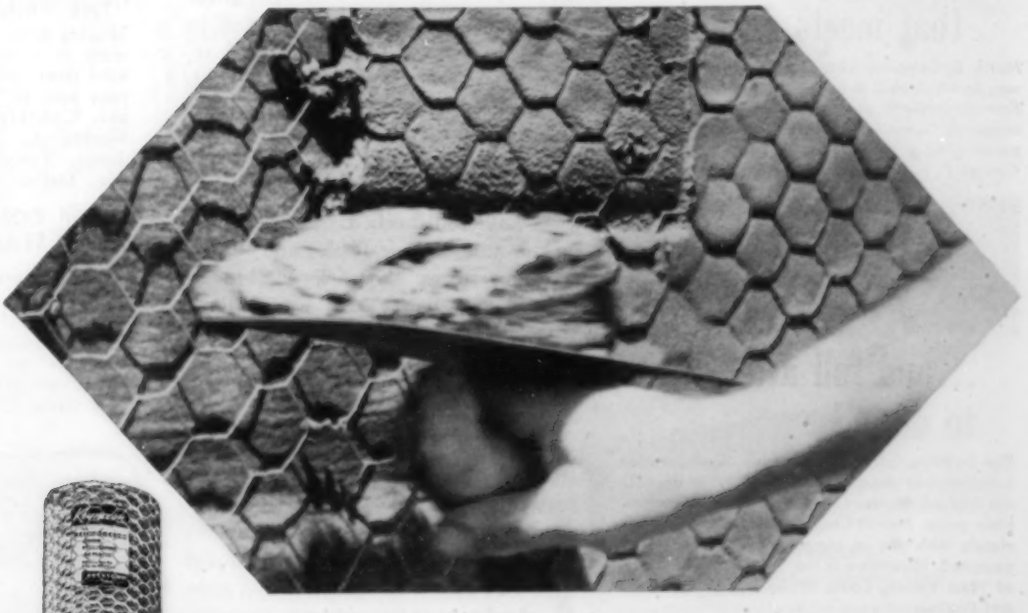
REG. U. S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

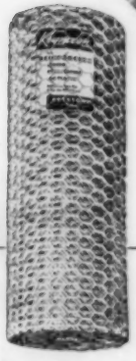


A dollar shaved is a dollar earned

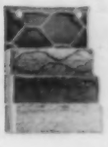
Designing homes and commercial buildings in which *eye appeal and dollar savings* must be combined is a problem which has at least one completely satisfactory solution . . . the Keystone System of Stucco Application.

In any price bracket, in any geographical location, the structural versatility and durability made possible by the Keystone System of Stucco Application sets new standards for exterior finishes. For interiors and overcoating, too, Keymesh offers design and construction advantages worthy of your consideration. Let us send you the booklet, "Specification for Beautiful, Durable Stucco." Write: Keystone Steel & Wire Company, Peoria 7, Illinois.





KEYSTONE SYSTEM OF STUCCO APPLICATION WITH KEYMESH



. . . By the Makers of: Tie Wire, Welded Fabric, Non-Climbable Fence, Nails, Gates, Keystone Poultry Netting, Red Brand Fence and Red Top Steel Posts

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...specialist skills to fill every need

In the pulp and paper industry, for example, Merritt-Chapman & Scott has put its specialized skills to work building new plants or additions for 12 companies within the last 10 years. Typical is this new plant recently completed for Alabama Pulp & Paper Company. *Hardy S. Ferguson & Company, Consulting Engineers.*

...plus speed that meets deadlines

Merck & Company can attest to the ingenious way in which M-C & S speedily built the world's first streptomycin plant at Elkton, Va. and simultaneously constructed a final processing and packaging plant (above) at Rahway, N. J. *George P. Butler, Consulting Architect.*

...and full attention to detail!

The building of three Veterans Administration hospitals has sharpened our ability to produce the highest standard of work at the lowest possible price. Merritt-Chapman & Scott will work closely with you in completing your project as designed. *Illustrated is the 900-bed VA hospital at West Haven, Conn. William A. Riley, Architect Engineer.*

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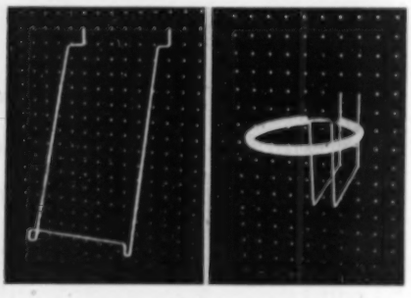
Architectural Engineering

PRODUCTS

(*Continued from page 238*)

Perforated Panels for Storage and Display

A versatile new panel for storage and commercial display consists of a wallboard sheet with holes punched on 1 in. centers. Called *Peg Board*, the unit has a great variety of hooks, brackets and



Shirt easel and hat rack are two of many fixtures available for perforated panels

bars which are inserted as desired in the board. Once inserted, they cannot be removed until all weight has been removed from them. The wallboard panels are available in a wide range of sizes, ⅛ or ¼ in. thick. It may be ordered unfinished or lacquered, with any of a variety of mountings or legs. Hooks are satin-cadmium finished. Suggested uses include merchandise display and storage racks for stores, and racks for kitchen equipment, closets and work shops. B. B. Butler Mfg. Co., Inc., 3432 N. Avondale Ave., Chicago 18, Ill.

Paint Colorant

Tint-A-Matic Color Cubes, concentrated tinting colors in cube form, have been developed as a simple means of producing desired paint tints and shades. The cubes are made in 24 colors; through inter-mix with white paint, a vast number of colors may be produced. The cubes are claimed to be 100 per cent mixable, and may be used with house paint, wall paints in flat, gloss or semi-gloss, brick and cement paint, furniture enamels, trim and trellis finishes, and floor and deck enamels. Resultant tints and shades are said to be fast to light, and

(*Continued on page 242*)

✓Check ENGINEERED HOUSING for *Buyer Appeal*

"BUYERS LIKE the versatility of Engineered Houses. They provide good, liveable homes of fine construction to this area at economical prices. Our projects are throughout western Kansas and eastern Colorado."—I. W. Harper, *Pres.*, Harper Construction Co., Great Bend, Kansas.

"THE PRINCIPLE of Engineered Houses gives home buyers what they want at economical prices. We have sold over 1000 of them during the past year in Texas, Oklahoma, Kansas, Colorado and Louisiana."—Nathan L. Jones, and Nathan E. Jones, Town & Country Builders, Inc., Dallas.

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find Engineered Houses the answer to fine, economical construction *with buyer appeal!* Not pre-fab, but precut and panelized by mass production methods for savings. Our 42-acre plant can produce almost *any* house you want. Your plan or ours.

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Art Metal Provides

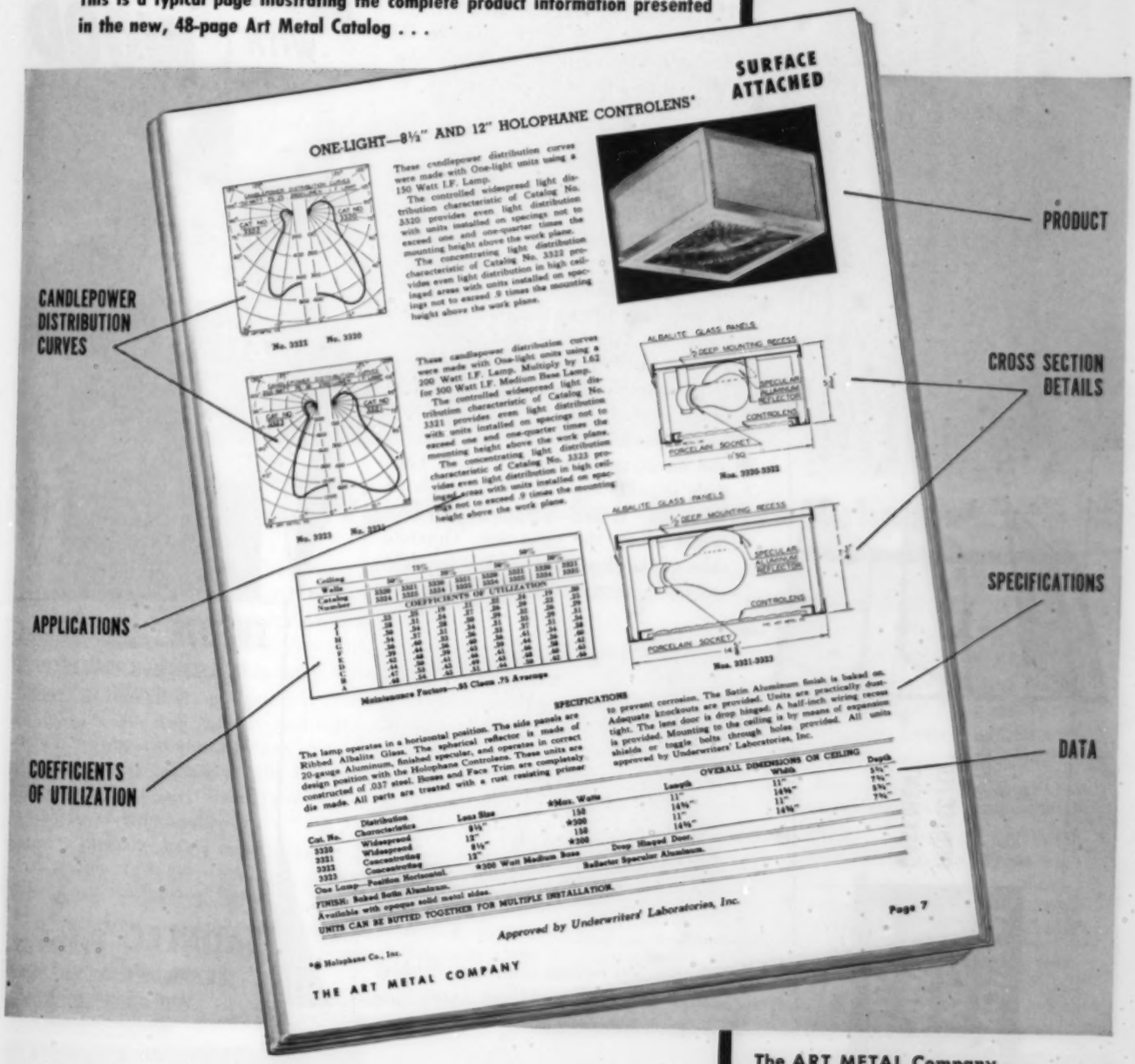
All the DATA You Need to specify and Use

INCANDESCENT LIGHTING

This is a typical page illustrating the complete product information presented in the new, 48-page Art Metal Catalog . . .

Explicit Data

- 99 Product Illustrations
- 51 Cross Section Details
- 47 Light Distribution Curves
- 24 Coefficient of Utilization Tables
- Detailed Product Specifications
- General Engineering Information



THE **ART METAL** COMPANY • CLEVELAND 3, OHIO

Manufacturers of Unified Lighting Equipment for Office, Store, School, Hospital and Hotel

There's an Art Metal Incandescent Unit for every lighting need.

Art Metal Unified Lighting, standardizes the design, style and finish of each unit, to achieve an architecturally integrated installation.

The ART METAL Company
1814 East 40th Street, Cleveland 3, Ohio

Gentlemen: Kindly send me your CATALOG —INCANDESCENT UNIFIED LIGHTING.

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Name_____

Title_____

Address_____

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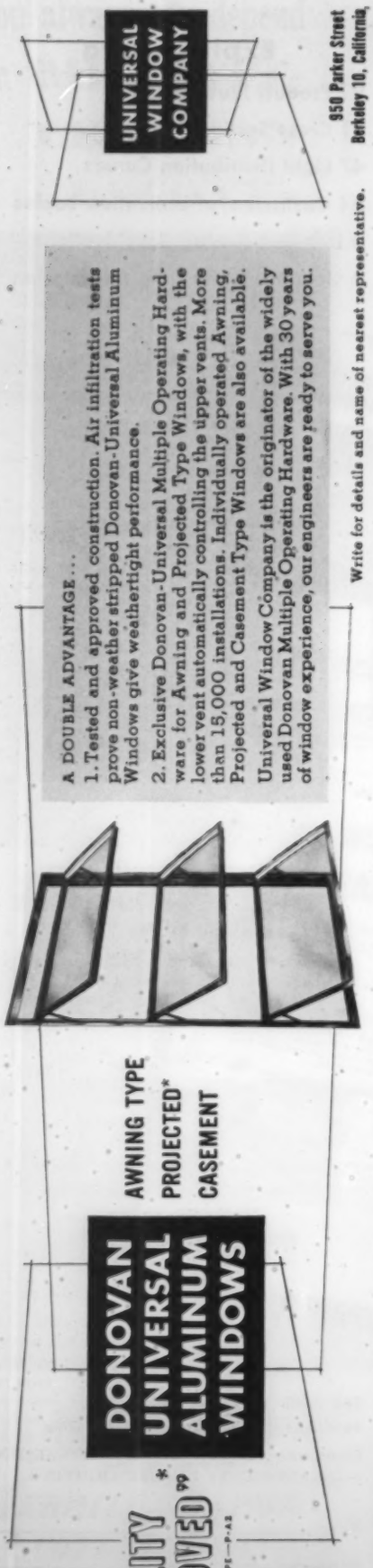
UNIVERSAL WINDOW COMPANY
950 Parker Street
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A DOUBLE ADVANTAGE...
1. Tested and approved construction. Air infiltration tests prove non-weather stripped Donovan-Universal Aluminum Windows give weathertight performance.
2. Exclusive Donovan-Universal Multiple Operating Hardware for Awning and Projected Type Windows, with the lower vent automatically controlling the upper vents. More than 15,000 installations. Individually operated Awning, Projected and Casement Type Windows are also available.
Universal Window Company is the originator of the widely used Donovan Multiple Operating Hardware. With 30 years of window experience, our engineers are ready to serve you.
Write for details and name of nearest representative.
AWNING TYPE
PROJECTED*
CASEMENT
DONOVAN UNIVERSAL ALUMINUM WINDOWS
"QUALITY APPROVED"*
PROJECTED TYPE—P-A2
WMA

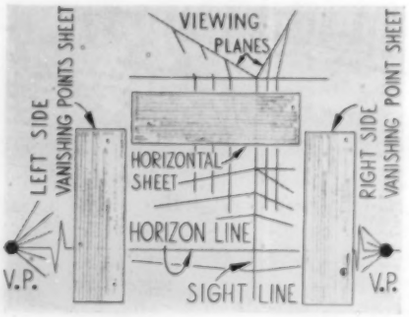
Architectural Engineering

PRODUCTS
(*Continued from page 240*)

not affected by any agents which will not adversely affect any top grade paint. The product is manufactured by the Tint-A-Matic Corp., Goffstown, N. H. The marketing agent is the Rahr Color Clinic, 9 E. 56th St., New York, N. Y.

Drafting Aid

Perspecta-Guide consists of three 5 by 17 in. plastic sheets with scales printed on both sides to replace the construction lines of the two-point system of perspective drawing. One sheet has calibration marks, projected from the picture plane, of lines drawn from the viewing planes to the station point or viewing distance. It is set up for plans at 45/45, 30/60 or 15/75 degree angles, and for viewing distances of 25, 50, 75 and 100 ft. The other two sheets have proportional distances and directions of vanishing lines. Each scale is calibrated at 1 ft intervals. A ¼ in. scale is furnished to measure true height along the sight line. Opposite sides of the sheets are marked for right or left side perspectives.



Three guides replace customary vanishing points and viewing planes needed for perspective drawings

The device is claimed to reduce considerably the time necessary to make a perspective drawing, to limit working area needed, and to require only a small scale plan and elevation for reference dimensions. By transposing the scales from ¼ to ⅛, ½ in., etc., any size perspective and viewing distance can be used. Perspecta-Guide, W. B. H. Products, Box 1211, Chicago 90, Ill.

if you're using plywood...
if you like natural wood finishes...
you'll welcome these

WIZARDS WITH WOOD

FIRZITE—*tames wild grain and checking on fir plywood and other soft woods.*

For stained, natural effects, use Firzite to tame that wild grain.

For painted or enameled jobs, use Firzite to minimize face checking and grain raising.

For blond, pickled or tinted tones, use White Firzite for a real "woodsy" effect.

SATINLAC—*emphasizes the natural beauty of wood wall panels, trim, rails, doors, furniture, etc.*

To bring out and preserve the natural grain and beauty of any wood, *use Satinlac.* To avoid that heavy, "built-up" finish, *use Satinlac.* Newer than shellac or varnish; water-white; will not turn yellow.

Write for suggested specifications to:
UNITED STATES PLYWOOD CORP.
Dept. 107, 55 W. 44th St., New York 18, N. Y.

Modern Ventilation for Modern Schools

Smart new Trane Unit Ventilators in the Church of the Crucifixion School*, La Crescent, Minnesota provide positive controlled ventilation to classrooms and assure the utmost in efficient, economical operation.

These sturdily built units bring in fresh outdoor air, filter it, warm it, and move it gently to even the remotest corners of the classroom—quietly and without danger of drafts. They supply an abundance of clean, invigorating fresh air, tempered just right for health and comfort, to increase alertness and to help every child enjoy the room where he spends so much of his time.

Trane engineering skill in classroom weather magic has developed smoothly running fans that insure whisper-quiet operation. Scientifically designed air-blocks and dampers positively prevent cold outside air from blowing directly through the unit. Famous Trane Kinetic Orifice coils guard the unit against freezing. Directional flow grilles meet every installation requirement. Generous filters trap dust and dirt.

For simplified maintenance the one-man front panels make the unit easy to "get into" and just as easy to service.

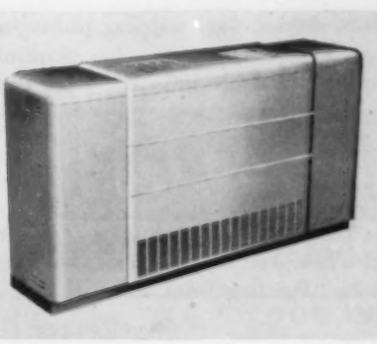
The Trane representative in your area will be glad to show you why Trane Unit Ventilators are being selected for modern schools all over the nation. Contact him for complete information.

**Architect: John J. Flad & Associates, Madison, Wisconsin*
Contractor: Kletzke Plumbing & Heating, La Crescent, Minn.

THE TRANE COMPANY...LA CROSSE, WIS.
EASTERN MANUFACTURING DIVISION, SCRANTON, PA.

Manufacturing Engineers of Heating, Ventilating and Air Conditioning Equipment—Unit Heaters, Convector-radiators, Heating and Cooling Coils, Fans, Compressors, Air Conditioners, Unit Ventilators, Special Heat Exchange Equipment, Steam and Hot Water Heating Specialties ... IN CANADA, TRANE COMPANY OF CANADA, LTD., TORONTO.

There are Trane Unit Ventilators for every size room—gymnasium, classroom, auditorium or office. Write for Bulletin S-340 which gives complete information.



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The new Kayline catalogue puts the most modern developments in commercial and industrial lighting at your finger tips!

the one source lighting line

Catalogue No. 50 has the answers to all your lighting problems . . . shows the complete range of incandescent, fluorescent and slimline fixtures covering the full commercial and industrial fields. Mail the coupon for your copy today.

THE KAYLINE CO.
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Cleveland, Ohio

NAME .....

ADDRESS .....

CITY ..... STATE .....

KAYLINE

Architectural Engineering

LITERATURE
(*Continued from page 158*)

covered include safety, health, flexibility, durability and economy. Notes are included for the use of wood as framing, siding, trim, paneling, cabinets, etc. 8 pp., illus. West Coast Lumbermen's Association, 1410 S.W. Morrison St., Portland 5, Ore.

Wood Study

Wood Study Kit Manual. Accompanying a wood study kit that contains 54 specimens of commercial wood, the manual describes the properties and uses of each species and provides information about forest resources. It is illustrated with 51 magnified cross-sections and gives directions for identifying the various woods. (Manual, 84 pp., illus., and Wood Study Kit, $8.50.) Timber Engineering Co., 1319 18th St. N.W., Washington 5, D. C.

Standard for Veneered Doors

Recommended Commercial Standard for Hardwood Veneered Doors. This new standard provides minimum requirements for panel, sash and flush stock doors having faces of hardwood veneers. It covers construction, grades, sizes, tolerances and labeling. Layouts and designs for both interior and exterior doors as well as for sidelights also are included. Commodity Standards Division, National Bureau of Standards, Washington 25, D. C.

Ice Flakes

Instant Ice Machine (*LF-451 and LF-452*). Folders describe new machine designed to produce, it is said, up to a ton of ice flakes a day at a low cost per ton. The machine's uses are given for hospitals, cafeterias, hotels, restaurants, bars, dairies, food shipping plants and special applications. Cutaway chart and specifications are included. 4 pp. illus. Liquid Freeze Corp., 1133–24th St., Oakland 7, Calif.

Painting Clay Masonry Walls

Technical Notes on Brick & Tile Construction. Vol. 1, No. 4. This issue deals with "Painting Brick and Tile Walls"

(*Continued on page 246*)

Get ready for Winter!

INSTALL

TODD BURNERS

—GAS OR OIL

Now's the time to prepare for cold weather! Cut your power costs . . . modernization saves up to 10% on your fuel and maintenance bills. Let skilled Todd specialists engineer your boiler plant for maximum economy — either by modernizing obsolete equipment or providing a new and efficient installation.

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COMBUSTION EQUIPMENT DIVISION
TODD SHIPYARDS CORPORATION
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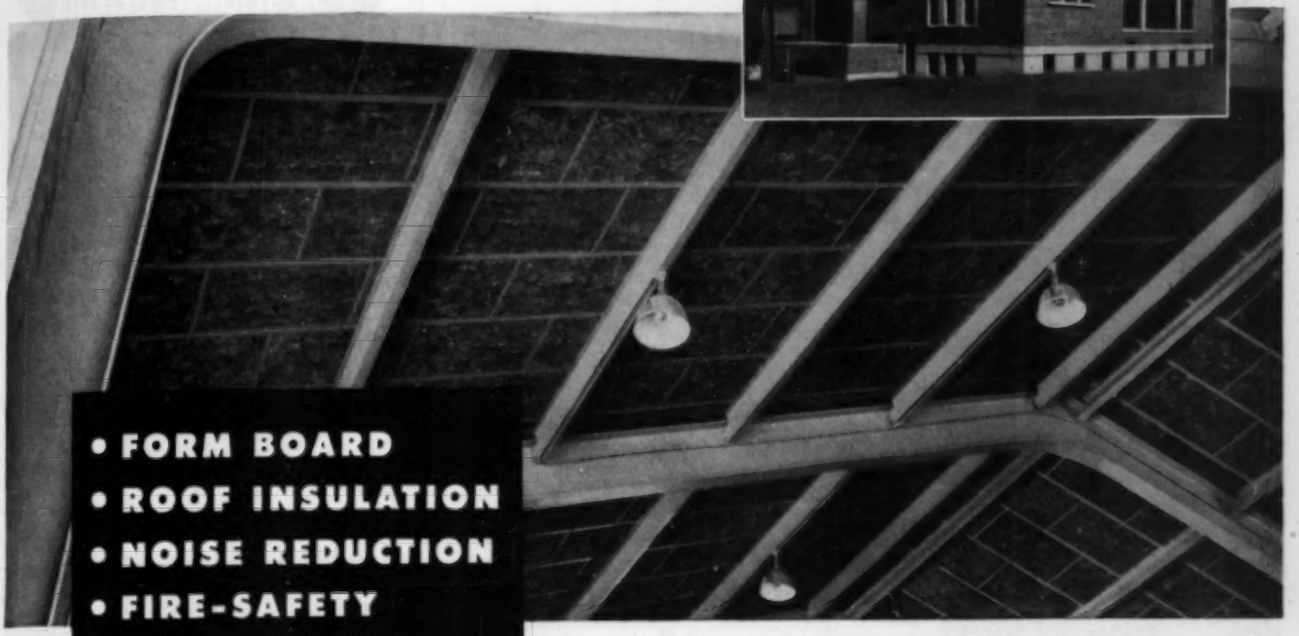
• Highland Park Community Center, Highland Park, Ill. • *General Contractor:* City Wide Bldrs., Chicago, Ill. • *Architect:* Bertram Weber, Chicago, Ill. • *Gypsum Roof by* Anning-Johnson, Chicago, Ill.



GET ALL 4 AT ONE PRICE WITH FIBERGLAS* INSULATING FORM BOARD

for Gypsum and Lightweight Aggregate Roofs

With this permanent Form Board—new and unique in its functions—you can offer your clients substantial savings and many *plus* values. By specifying Fiberglas Insulating Form Board, you obtain, in addition to a permanent form, a firesafe, decorative, acoustical ceiling and an efficient roof insulation—all in one application.

For poured-in-place decks, the board—size 32″ x 48″ x 1″—is laid in place between subpurlins normally spaced 32⅝″ on center. The weight of the poured mix causes a minimum deflection in the board. Other advantages of Fiberglas Form Board are that it does not rot, decay, swell or shrink when exposed to moisture. After erection the exposed decorative surface may be spray-painted.

For further information, write us today for our A.I.A. File No. 37-B, "Fiberglas Design Data", or refer to Sweet's Architectural Files. Many other "Fiberglas Design Data" are available. For example, "Fiberglas Perimeter Insulations", "Fiberglas Duct Insulations" and "Fiberglas Roof Insulation".

ONE PRICE for Installation and Material *BRINGS:*

FORM BOARD—is quickly and easily handled, cut and installed by standard methods. Strong and light in weight, it is suitable for flat, curved or pitched roof framing.

ROOF INSULATION—The deck composed of 2″ of gypsum plus 1″ of Fiberglas Form Board with a built-up roof offers a heat transmission (U) of .15 Btu/hr./sq. ft./°F.—exceptionally low.

ACOUSTICAL TREATMENT—Riverbank Laboratories' tests of Fiberglas Form Board and poured-in-place slabs show a noise reduction coefficient of .75—as good or better than regular acoustical materials.

FIRESAFETY—Fiberglas Form Board is incombustible. The ageless glass fibers neither burn nor support combustion.

OWENS-CORNING FIBERGLAS CORPORATION, DEPT. 68-I, TOLEDO 1, OHIO

OWENS-CORNING FIBERGLAS
BUILDING MATERIALS

*Fiberglas (Reg. U. S. Pat. Off.) is the trade-mark of the Owens-Corning Fiberglas Corporation for a variety of products made of or with glass fibers.

BUILDING INSULATION • ACOUSTICAL TILE • ROOF INSULATION • MEMBRANE FABRIC

ANDREW J. HIGGINS
built this dream house in glamorous

...with walls so light they could float on water

Thermo-Con cellular concrete is a development of Higgins Resources, Inc. As it hardens, it expands 2½ times the original volume, forming a cellular structure composed of countless small uniformly sized spherical cells. Light yet strong, fireproof and insulating.

...with the wondrous comfort of **WEBSTER Baseboard Heating**

Floor to ceiling temperatures vary less than 2 degrees. Webster Continuous Flow Control keeps water moving in the piping as long as the outdoor temperature is below 70°. Heating is concealed . . . along every outside wall. No hot spots or cold spots. It is clean heat, radiant heat, convected heat. The Higgins home was designed by Sporl & Maxwell, New Orleans architects. The heating installation was made by American Heating & Plumbing Co., New Orleans.

Questions and Answers

Booklet, "Questions and Answers about Webster Baseboard Heating," and descriptive literature sent on request.

Address Dept. AR-9
WARREN WEBSTER & CO.
Camden 5, N. J.

Webster BASEBOARD HEATING

Architectural Engineering

LITERATURE
(*Continued from page 244*)

and contains current available engineering data compiled by Structural Clay Product Institute engineers. Selection of masonry materials and paint, and cement, oil, resin-emulsion and rubber-solution paints are discussed. 4 pp. illus. Structural Clay Products Institute, 1520 18th St. N.W., Washington 6, D. C.

Water Softeners

Cochrane Junior Industrial Water Softeners (*Pub. 4505*). Leaflet describes small zeolite water softeners for apartment houses, hospitals, laundries, small boiler and industrial plants where the requirements may be under 100 gal per min. Specifications, dimensions and capacities for the softeners are given in addition to diagrams. 4 pp. illus. Cochrane Corp., 17th St. and Allegheny Ave., Philadelphia 32, Pa.

Conductive Floors

Thoughts About Conductive Floors. A reprint from the April, 1950, issue of *The Construction Specifier*. Author Dean S. Hubbell presents a discussion in simple language on the use of conductive floors to prevent anesthetic explosions in hospital operating rooms. 2 pp., illus. Mellon Institute, 4400 Fifth Ave., Pittsburgh 13, Pa.

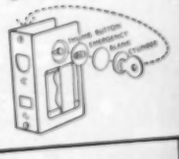
Lighting

Gotham Architectural Lighting (*GLC-15A, condensed catalog GLC-15A*); *Formlite* (*Bulletins 31-F2, GLC-16*), *A Contemporary Design for Lighting* (*Bulletin GLC-11A*). First two catalogs present *fluor-o-troughs*, recessed, surface, or pendent (individual or continuous fluorescent as well as fluorescent and incandescent combined), and with flat or curved lenses, diffusing glass or hinged louver; *downlites*, recessed and surface, and with open buttoms, louvers or controlens; and *formlites*, available in four variations of the basic shape. Next two bulletins show 20 different mountings for *formlite* and include a price list. The last bulletin introduces the *indirect domelite*, a suspended fixture

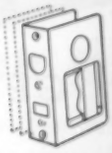
(*Continued on page 248*)

NEW SERIES 500
RITE-LOCK
FOR SLIDING DOORS

NOW—FULLY REVERSIBLE



3 ADJUSTABLE WIDTHS FIT 1⅛"-2" DOORS



Here is the most versatile lock for every sliding door application. It is adaptable to any requirement as to hand, security and finish . . . while the three standard sizes adjust to fit any door thickness, 1⅛" to 2".

The thumb button, emergency or blank discs or cylinder can be interchanged from side to side on the job. This means that dealers can supply any combination required by merely stocking a few representative discs and cylinders in popular finishes.

Rite-Lock is easily installed by a simple cut-out without any mortising. The escutcheon measures 4½" x 2⅞". All exterior parts solid brass. Write us on your letterhead for the new Adams-Rite Catalog 49.

CYLINDER DEADLOCK FOR SLIDING DOORS

This cylinder deadlock operates by cylinder from one or both sides. Fits all standard cylinders with adapter cams furnished (specify when using Yale or Sargent cylinder). Solid bronze face, strike and bolt. Heat treated aluminum alloy case. Use your own cylinders and trim. Also used as jimmy-proof lock.

QUALITY HARDWARE FOR NEARLY HALF A CENTURY
ADAMS-RITE MANUFACTURING CO.
540 WEST CHEVY CHASE DRIVE, GLENDALE 4, CALIFORNIA, U. S. A.

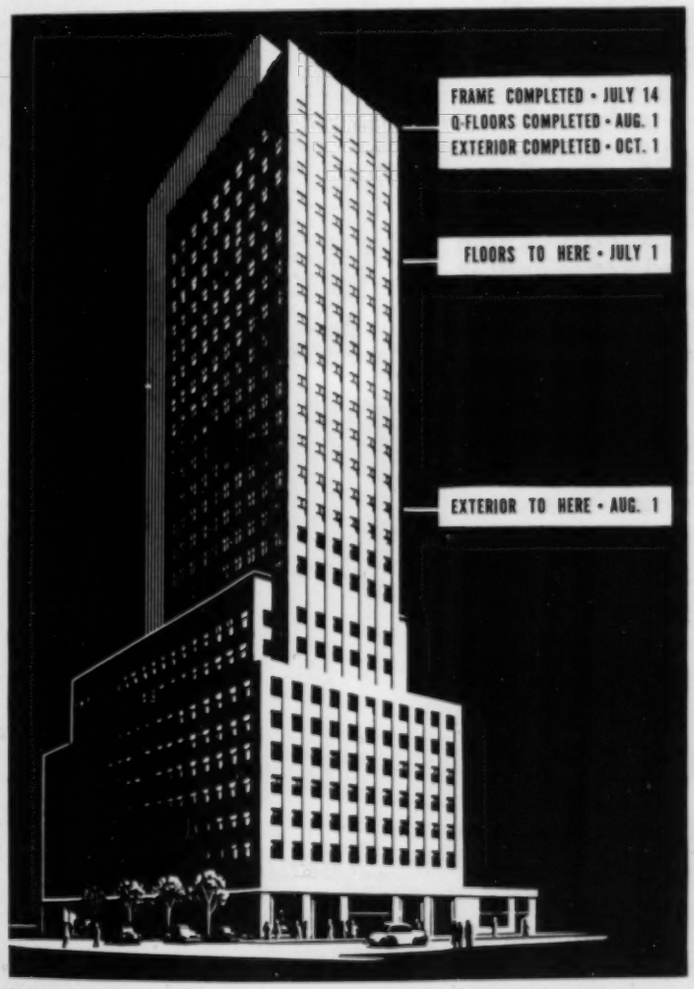
Story behind the story

in June 12th **LIFE** magazine

LIFE's story on the fast construction schedule being maintained at the Massachusetts Mutual Company's skyscraper home in New York City indicates that a new record in construction speed is likely to be set if the present pace is maintained.

LIFE's article does not attempt to explain the factors that are making this speed story possible. But they boil down to simply this:

1. Excellent job organization and co-operation among the sub-contractors; the contractor, Turner Construction Company; the steel fabricator, Bethlehem Steel Company; and the architects, Carson and Lundin.
2. The use of Robertson Q-Floor construction.



600 Fifth Avenue Building
Owner—Massachusetts Mutual Life Insurance Co., Radio City, New York

Carson and Lundin—architects
Turner Construction Co.—contractor

Q-Floors have long since proved their ability to reduce construction time 15 to 20%. This is because:

- They are cellular steel sub-floors. Light in weight but extremely strong.
- They arrive pre-cut, ready to lay in place.
- Two men can lay 32 sq. ft. in 30 seconds.
- They are welded to the frame.
- They form an immediate working platform. Other trades proceed full speed, regardless of freezing weather, not delayed by wet materials.
- Sub-contractors store their materials directly on the floors, reducing costly extra handling. Streets are kept uncluttered.
- Forms and shoring are reduced simply to the need of fireproofing.
- The floors can go in on the heels of the steel framework. Stairs go in right away; a distinct safety factor.
- Drafting room work is greatly simplified. Electrical outlets and partitions can be located *after* tenants move in. Elimination of pre-set inserts does away with the many revision drawings needed in old-fashioned construction.

This desire for construction speed is more than a publicity stunt. Every day of construction time saved can be counted in dollars saved by everyone concerned. Construction insurance and financing costs are reduced. The owner begins to capitalize on his investment sooner. That's why construction speed is desirable . . . it is money in the bank as well as a building in use.

Despite all this, Q-Floor costs less than the carpet that covers it! Q-Floor does not cost more, when all the intangibles (which do not show up on a contractor's estimate) are taken into consideration. Q-Floor saves time . . . saves money.

That's the story behind the story in LIFE.

Have You Read the latest Q-Floor Literature? Write

H. H. ROBERTSON CO.

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